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ABSTRACT

An adapted version of the Bidwell-Kasarda model on school district organizational effectiveness was used to examine all 66 school districts in Louisiana in 1974-75. In an effort to remedy some of the problems in the Bidwell-Kasarda model, student retention rate was substituted for student achievement as the measure of district effectiveness, some variables were rearranged, and the percentage of rural students was added as a variable. Secondary data was used; path analysis and zero-order correlations were the statistical techniques employed. Results indicated significant effects between pupil-teacher ratios and the district's fiscal resources, parental education level, and rural population, while administrative intensity was significantly affected by size, fiscal resources, and disadvantaged population. None of the model's variables significantly explained the professional support component. The only other significant effects shown by the model were between qualifications of the staff and fiscal resources, and between school district retention rates and staff qualifications. The model did show fiscal resources had substantial effect on retention rates that were mediated by intervening variables. Neither the adapted nor Bidwell-Kasarda models accounted for much variation (21% and 25% respectively). (RS)

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SCHOOL DISTRICT ORGANIZATION AND
STUDENT RETENTION

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Arts

in

The Department of Sociology

by

Allen Word Comfort
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December, 1977

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ABSTRACT

This thesis focuses on the organizational effectiveness of Louisiana public school districts. The dual purpose of the research is: 1) to replicate a model previously utilized by Bidwell and Kasarda as nearly as possible; and 2) to analyze an adapted version of their model to predict student retention. The 66 public school districts in Louisiana comprise the sample used in this analysis. The data were gathered from United States Census reports and the annual reports of the Louisiana State Department of Education.

Theoretical and empirical literature pertaining to complex organizations, educational systems as complex organizations and student retention rates are reviewed, along with the literature specific to the Bidwell-Kasarda model on school district organizational effectiveness. Three theoretical propositions were developed to test the adapted model for Louisiana public school districts.

The research method used in this thesis is an analysis of secondary data. Path analysis and zero-order correlations are the main statistical techniques employed.

The results indicate that pupil-teacher ratios are significantly affected by the fiscal resources of the district, the parental education level and the rural population. The size, fiscal resources, and disadvantaged population of the district have significant effects on administrative intensity. None of the variables in this

model significantly explain the professional support component. Qualifications of the staff are significantly affected only by the fiscal resources of the district.

The school district retention rates only had qualifications of the staff as a significant effect. Also, the fiscal resources of the district had substantial indirect effects on retention rates that were mediated by the intervening variables. In the final analysis, it seems that none of the propositions developed for this thesis are supported. Interpretations of the results, theoretical implications, and limitations of the study are also presented.

CHAPTER I

INTRODUCTION

The institution of education has been a source of sociological inquiry for many years. Generally, sociologists will agree that Emile Durkheim was the first who indicated the need for a "sociological" approach to the study of education (Brookover and Gottlieb, 1964:3). Durkheim viewed education as:

"...something essentially social in character, in its origins and its functions, and that as a result, the theory of education relates more clearly to sociology than to any other science." (cited in Brookover and Gottlieb, 1964:3)

During the early years of this century, while sociologists felt that education should be studied, there was no consensus as to the aims of "educational sociology." Brookover and Gottlieb indicate that the various educational sociologists of the time viewed their discipline as: 1) a means for social progress to cure social evils; 2) a basis for determining the aims and objectives of education; 3) an application of sociological principles to educational problems; 4) an analysis of the socialization process of children; 5) a means to train educational workers; 6) an analysis of the place of education in society; and 7) an analysis of the social interactions present in the school and between the school and the community (1964: 5-10).

Because there was so much disagreement about the objectives of the discipline, many sociologists avoided the field. It has been in the last quarter century, however, that education has become a

major focus of research in the discipline and has attained a certain respectability among sociological researchers (see, for example, Pavalko, 1968; Bell and Stub, 1968; Stub, 1975; Swift, 1970; Brookover and Gottlieb, 1964; Cordasco, Hillson and Bullock, 1972; Schwartz, 1975; and Brookover and Erikson, 1975). At the same time, the discipline has been reconceptualized and is now more commonly referred to as the sociology of education. Nearly fifteen years ago, Robert C. Angell began this reconceptualization. He maintained that educational sociology is merely a branch of the pure science of sociology (1928: 408-413). His preferred nomenclature was the "sociology of education" and he suggested that the school was a source of data which could be analyzed according to sociological methods.

Forty years after Angell, Bell and Stub essentially agreed with Angell's position. They said:

"The sociology of education may be defined as a scientific analysis of a specific social institution. The word sociology denotes a body of theory and method that may be applied to the organization and behavior of any subdivision or institution of society. Sociology therefore refers to the particular scientific approach being used. Education refers to the particular subdivision or institution of society that is to be studied." (1968: 1)

Just as Angell had pointed out, "sociology" refers to the scientific method (and procedures) being used--"education" refers to the system being studied (hence, it is a source of data).

The Problem

In their efforts to study education, sociologists have analyzed many of the same phenomena that they have researched in

non-education settings; thus there are research activities which are paralleled across specific sociological topics. One topic which has received attention is the ability of formal organizations to accomplish goals which they have set for themselves (see, for example, Simon, 1969; Sills, 1969; Popenoe, 1977: 164-169; and Schwartz, 1975: 108-110). In fact, this is often used as a chief indicator of organization "success". A very recent article by Bidwell and Kasarda (1975) used this premise in analyzing the effectiveness of school district organization. Their article has engendered a rather prolonged debate between themselves and two groups of critics (Hannan, et al., 1976; and Alexander and Griffin, 1976a and 1976b).

This thesis considers the model of Bidwell and Kasarda, the various models of their critics, and presents an alternate model of school district organizational effectiveness. The model will be methodologically strengthened by the incorporation of one new input variable, the use of a new dependent variable, and the reordering of the causal sequence within the model. The purpose of this research is to nearly replicate Bidwell and Kasarda and to analyze the efficacy of an adapted version of their model to predict student retention.

Significance

Just as in the Bidwell-Kasarda organizational model, the causal model in this thesis is also an attempt to predict organizational effectiveness. The result then is a movement into the realms of evaluation research.

A simplistic view of evaluation research indicates that first the researcher must ascertain the goals of the organization (Weiss, 1972: 24). Then the evaluation of the organization can be based on how effective the organization is in meeting these goals (i.e., the "productivity" of the organization). The goals of schooling are many and often they are vague. Bidwell and Kasarda admit that their use of academic achievement as a goal of school districts was a choice from among many possibilities (1975: 57). Their choice was based on the fact that this output (student achievement) is widely measured. The goal of school district organizations to be used in this thesis is the retention of students in the school system until graduation (otherwise known as the "holding power" of the school system). Support for the use of this output as a goal is found in an article by Corwin. He describes a school system in the following manner:

"The productivity of the system was measured in terms of the proportion of the students in the system who enrolled and graduated in comparison with the proportion of dropouts. The alarming number of dropouts, some educators thought, constituted a loss of 'raw material during the process of production'..." (1975: 16).

Further support for retention as a goal of school districts is offered by Tannenbaum (1966), who indicates the link between early withdrawal from school and joblessness. He gives at least two reasons why school districts want to retain students. First, the mere fact that some students remain in school will reduce the number of frustrated job hunters. Second, Tannenbaum says:

"It seems that the diploma is the thing, and it does not matter so much what kind of accomplishment it signifies so long as it has 'union card' value." (1966: 31-32).

The evaluation of a school district can be considered on a theoretical and on a practical plane. On a theoretical level, this is an evaluation of the organization of Louisiana school districts in order to see what facets of their organization can cause changes in their ultimate effectiveness. Information of this type can be used to build a theory explaining the factors of a school district that cause students to dropout or to remain in school; i.e., to explain "holding power" or conversely, "failure to hold." Thus, it may be possible to theoretically explain school district retention rates.

The practical value of this type of study is that, potentially, retention may be subject to manipulation, hence it could be increased. Further, it is practical to investigate the organization of the school district and how well the district is meeting its goal of keeping students in school. This is especially true when one considers that financial allocations to the public schools are made on the basis of the number of students enrolled. The axiom here is the more students, the more money for the district. Thus retaining students is a serious business for administrators of a district and a test of the school district's organizational effectiveness.

This investigation demonstrates how much effect factors have on retention rates and whether their effects are positive or

negative. Consequently, educators can use this information to upgrade the school district and to improve the retention rates. The result could be more effective programs with more students remaining in school.

This project has added significance when one considers the present dispute between Bidwell and Kasarda and their critics. Bidwell and Kasarda, Alexander and Griffin, and Hannan, Freeman, and Meyer have considered a common problem--the effectiveness of school districts. But in considering this problem, they have reached little or no consensus as to how the study should be done and what conclusions should be made (or, rather, "could" be made).

In the present study, many of the points of debate between Bidwell and Kasarda and their critics were reviewed. An attempt was made to remove the difficulties that existed in the original study by Bidwell and Kasarda. Consequently, a revised model of school district organizational effectiveness was created. Thus, a new dimension is added to school district organizational effectiveness studies.

Additionally, this thesis is significant as an exercise in theoretical model-building. An opportunity has been provided for the author to engage in "cause and effect" and "temporal order" logic in order to "create" a new model of school district organizational effectiveness. The discipline of sociology seems to be steadily moving into this region of attempting to "explain" social phenomena by creating models that verify how some social variables

behave in order to bring about certain results (Duncan, 1975). This study is significant because of its place in this rather new method of "doing" sociology.

Organization of the Thesis

This thesis is comprised of seven chapters, the first of which has been this introduction. Chapters II and III are a review of the literature. Literature on the sociology of complex organizations, on educational systems as complex organizations and on the antecedents of high school dropout rates is the subject of Chapter II. Chapter III is concerned with the literature specifically related to the Bidwell-Kasarda model. The theoretical framework of this research is presented in Chapter IV. Chapter V deals with the methods and procedures used in the research. The analysis and interpretation of the results is the subject of Chapter VI. Chapter VII contains a summarization of this research project, the implications that can be made from the results, and some limitations that were present in the study.

CHAPTER II

GENERAL REVIEW OF RELEVANT LITERATURE

In the first part of this chapter some of the literature pertaining to the sociology of complex organizations is reviewed. This review is by no means exhaustive because the amount of literature on complex organizations is myriad. An attempt was made, however, to indicate the ways in which complex organizations have been studied and to discuss those factors of organizations that have been heavily researched.

In the next section of this chapter the literature concerning educational systems as complex organizations is reviewed. Corwin blatantly says that, "Schools are complex systems of organizations" (1975: 52).¹ The author of this thesis agrees with this assertion. Emphasis will be placed on literature showing that the school system has functions and characteristics similar to those of any other complex organization.

The literature to be reviewed in the final section of this chapter concerns high school dropouts. Theoretical and empirical literature that attempts to explain this problem is examined with special emphasis on causes and factors relating to the school

¹Similar statements have been made by Bertrand, 1973: 166; Perry and Perry, 1976: 302; Schwartz, 1975: 105; and Katz, 1968: 422.

district organization. Individual psychological antecedents of dropout rates are not reviewed, since these occur at a level of analysis not appropriate in this thesis.

The Sociology of Complex Organizations

When attempting to discuss the organization of social systems, one must first turn to Weber. In analyzing world societies, Weber discovered the foundations of modern complex organizations. Weber used the ideal type "bureaucracy" to denote these complex organizations. As an ideal type, Weber's view of bureaucracy was one of an efficient organization with a division of labor, a hierarchy of authority, a set group of regulations concerning job performance, personnel hired for their qualifications to do certain jobs and the establishment of a bureaucratic career (see Weber, 1958: 196-198; Bertrand, 1973: 167-168; Popenoe, 1977: 160-161; and DeFleur, et. al., 1971: 70-75).

The interest in modern complex organizations has resulted in a number of works covering all facets of their existence (see, for example, Etzioni, 1961; 1969a; Bertrand, 1972; Bell, 1967; Katz, 1968; and Zald, 1970). Initially, many sociologists have made an effort to describe complex organizations. Bertrand (1972: 129-148) used a general systems theory perspective to discuss the unique characteristics, functions, and structure of complex organizations. Complex organizations are defined by Bertrand as:

"...a type of social system which comprises two or more elemental groups with specialized functions dedicated to a particular goal and linked by interstitial groups through reflexive reciprocal role relationships." (1972: 132)

Blau and Scott (1967) discuss the elements present in formal (or complex) organizations that make them different from any other group. The term "bureaucratic organization" refers to some administrative machinery that is present. More important is the existence of some form of social relationships that bind the members of the organization into a cohesive group with a singular purpose.

The ongoing communication between members within complex organizations has also been researched. Bavelas and Strauss (1967) discuss a case study in which opened channels of communication between levels of the bureaucracy increased production. However, informal groups on the same level were not communicating and ultimately productivity fell again. Simpson (1967) discusses the thesis that most communication in complex organizations is vertical ("Instructions move down, information moves up," p. 155). However, he also notes that much of the communication is informal and horizontal as those persons on the same level work together to solve common problems. Dalton (1969) generally agrees in his discussion of the informal characteristics that are constantly present in a formal organization.

The leadership structure of complex organizations is another facet of their existence which has come under study. Selznick (1969) discusses the duties of a responsible leader in order to maintain the organization on a steady goal-oriented course. The "power positions" of a modern complex organization are discussed by Etzioni (1967). He describes the leaders as "elites"--those higher in rank.

He goes on to discuss the types of power that leaders can use in order to get the lower ranks within the hierarchy to comply with their wishes.

Another aspect of complex organizations is the study of how bureaucracy affects the individual in the organization. Argyris (1967) discusses human problems that may be created by working in an organization. The majority of these problems are caused by having healthy people become submissive, subordinate, and dependent due to their rank or place in the organizational structure. Yet Argyris concludes that individual health is tied to organization effectiveness. Man cannot survive without the organization to meet his needs.

Merton (1967) reviews some of the dysfunctions of bureaucracy as it relates to the individual members. He mentions a "trained incapacity" in which a bureaucrat learns one way to do something. If the circumstances change, the bureaucrat is lost for he knows no other way to do things and he has not been trained to think for himself.

Another element of complex organizations that interests sociologists is the power within the organization. Goldner (1970) reports a case study involving an industry that was unionized. He found a division of labor that was not always clear-cut and a constant struggle between units (not roles) for power in certain areas (hiring and firing for instance). Blau (1970) seems to be discussing conflicting terms in his study of decentralization in bureaucracies. By definition, the centralization of authority is required for a bureaucracy to exist. However, Blau argues that this concept should

be treated as a variable of degree. It was discovered that the "riskiness" of the decision, and the skill (technical versus management) necessary to make the decision were factors that affected the likelihood of delegating decision-making power in a bureaucracy.

Bucher (1970), Hall (1970), and Wamsley (1970) have discussed the power structure in the university setting. They are in agreement on the fact that the university is an "odd" form of complex organization in which no one seems to know where the real power is located. The only power structure that seems to exist is the one that makes rather mundane decisions such as graduation requirements and faculty committee assignments. But no one has the authority when the subject is policymaking, or student and/or faculty confrontations.

A final factor of study in complex organizations is the achieving of organizational goals. Etzioni points out that organizations are social units in pursuit of certain goals (1969b: 155). Simon (1969) discusses the difference in organizational goals and the individual goals of members within the organization. He also verifies the possibility of multiple goals for an organization (in fact, he seems doubtful that there is only a goal for an organization).

Perrow (1969) and Georgopoulos and Tannenbaum (1969) analyze the types of goals an organization has and its effectiveness in meeting them. Perrow discusses the differences in "official" goals (those in a charter, etc.) and the "operative" goals (decisions made

in regards to alternate ways to do things) and the difficulty in accepting stated goals at face value. The effectiveness of an organization in meeting its goals is one of the most complex issues in organizational studies according to Georgopoulos and Tannenbaum. They state:

"The concept of organizational effectiveness (sometimes called organizational 'success' or organization 'worth') is ordinarily used to refer to goal attainment." (p. 80)

In other words, the better an organization is in meeting its goals, the more "effective" it is. Georgopoulos and Tannenbaum point out a number of variables that have been used to test organizational effectiveness, but with the exception of "productivity" none of these variables seem to be very good indicators. It is clear that analyzing a complex organization on the basis of its "productivity" may be one of the best ways to study the "effectiveness" of the organization in attaining its goals.

The literature reviewed in this section has indicated the importance of the sociology of complex organizations within the discipline. The organizations have been studied as whole units. In addition, they have been studied so that certain of their characteristics, such as communication, leadership, power and goals, could be analyzed.

Educational Systems As Complex Organizations

Research on educational systems has overlapped into the sociology of complex organizations. This is understandable since the structure of education makes it an ideal example of the existence of complex organizations.

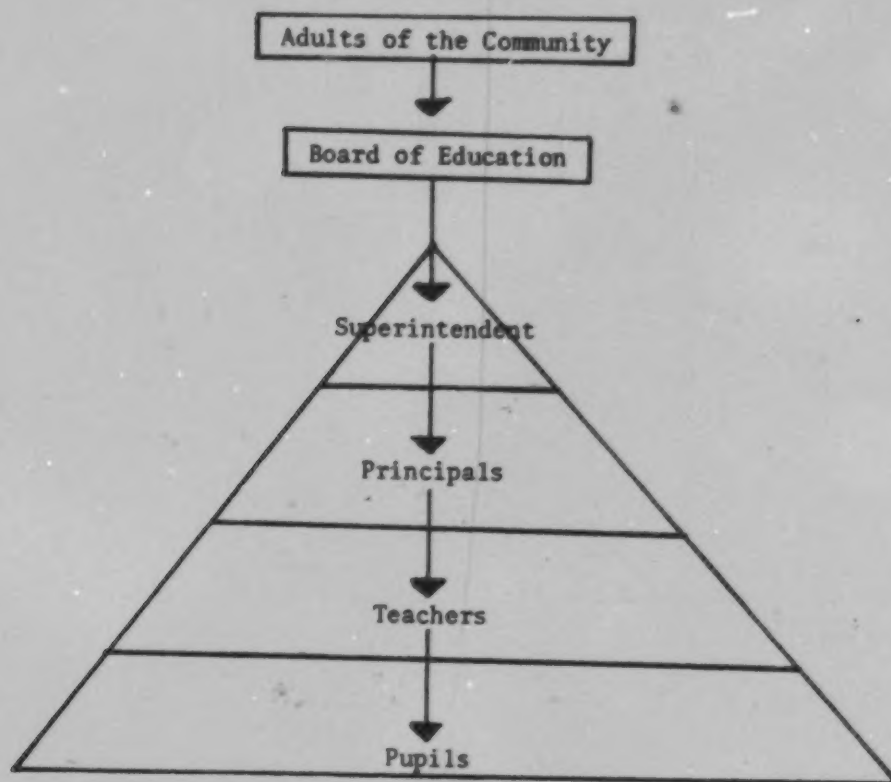
The bureaucracy that exists in the educational systems of urban schools is the subject of an article by Hummel and Nagel (1975). These schools are large in size and have a specialized division of labor (guidance counselors, librarians, English teachers, math teachers, etc.). Promotion "through the ranks" (from teacher to counselor to administrator) and a hierarchy of authority are present. The major theme, however, is that the schools firmly resist change. The status quo must be maintained.

The hierarchy of authority in a school situation is visually presented by Schwartz (1975). Schwartz describes the formal roles that are present in local school districts and the channels of authority that exist between these roles (see Figure 1).

Moeller (1968) conducted an empirical study to realize the sense of power of teachers in a school bureaucracy. He hypothesized that the teachers would have a feeling of "powerlessness" due to their low position in the bureaucratic structure. Instead, Moeller found that the more heavily bureaucratized school systems enhanced, rather than reduced, the teachers' sense of power. He suggested that the high efficiency and rationality present in the more bureaucratized systems lend themselves to greater predictability and more specific avenues of communication. Teachers consequently feel more power due to better (i.e., more efficient) working conditions.

Seeman (1968) discusses another aspect of leadership in a school structure. He is concerned with the role conflict that exists within the leadership positions of the bureaucracy.

Figure 1. Traditional Channels of Authority in Local School Districts



Source: Schwartz (1975: 115).

For example, a superintendent has a conflict between his role as "politician" (to get salary increases, argue for bond issues, etc.) and as "educator" (to see that academic standards are met in the classroom). Seeman's final analysis is on how this role conflict impinges on the individuals who experience it.

Many sociologists have studied the structure of the educational system. The classic example is Parsons' (1975) study of the school class as a social system. Parsons describes the structure of the school class and then he analyzes its function as the primary agent of formal education. Friedenberg (1972) analyzes the social environment that is present in an educational setting and argues that creativity is stifled and students learn to strive for "averageness." He equates the school system to a "melting pot" where different students are brought together and hopefully will come out homogeneous. However, he points out that adolescents tend to reject the commonness that the schools try to force upon them.

Blyth (1970) discusses the social processes that are evident in school systems as examples of behavior within complex organizations. Blyth discusses formal rules (norms), rewards and punishments (sanctions), and social change as they exist in the school system. He points out how some roles are so institutionalized that a change in personnel may have little effect on the organization as a whole.

The school as a complex social organization is also discussed by Katz (1968). Katz presents the case that the school is a specialized form of a complex organization. Diversification and

the presence of autonomy within the school system is explored. Katz argues that autonomy in the lower positions is much more prevalent than it would be in other complex organizations.

Cordasco, Hillson, and Bullock (1972) suggest that organizational theory should be used to develop models of educational systems. According to these authors, one of the most representative models for the utilization of organizational concepts in educational programs is the one created by Bertrand (1968). Bertrand presents an outline of the units of a social structure and then he reviews the elements and processes found in all social systems. Finally, Bertrand presents a behavioral model and a discussion of interaction within a complex organization wherein the model is to be applied to new educational programs.

Studying the goals of an educational system creates problems that don't exist for other complex organizations. Gross (1972) states that "...the business of schools is to impart knowledge and skills to students..." (page 14). However, he goes on to point out that the formal goals of public school systems are vague and ambiguous. It is very difficult to specify the purposes of education when "to educate children" is the only statement given. Schwartz (1975) finds a similar problem with educational goals. He reasons that a bureaucratic organization is the most rational way to meet goals if these goals can be stated. But, Schwartz also says that it is difficult to know when, and if, educational goals have been attained.

In this section an attempt has been made to show that educational systems are unique forms of complex organizations. Because of this, it seems advisable to combine organizational theory with education research in order to explain educational problems as they are affected by organizational characteristics.

Literature On Student Dropouts

Early student withdrawal from school has been increasingly studied in recent years. One of the most ambitious research projects to date has been "Project: School Dropouts" conducted by the National Education Association during the mid-1960's, in which approximately 130 separate school districts from all across the nation were studied (Schreiber, 1965).

Even two United States Presidents have made special appeals for the need to solve the dropout problem. President Kennedy said dropouts are, "...a waste we cannot afford" (Schreiber, 1964: iii). President Johnson stated "The cost of this neglect runs high--both for the youth and the nation" (Schreiber, 1965: 7).

Tannenbaum equates student dropouts with potential joblessness and lawlessness (1966: 1). Dentler and Warshauer reason that possibly the problem of student dropouts is glossing over a more fundamental policy problem--the intensifying underemployment of youth (1965: 2). There is little doubt that the problem is in important need of investigation.

The problem that next arises is deciding how the dropouts are to be studied. While some researchers might argue that the decision to dropout is solely an individual decision, Dentler and Warshauer say:

"Our analysis supports our contention that withdrawing from high school before graduation is not an individual event to be diagnosed, prevented, or otherwise treated individually. There are significant psychological processes involved in dropping out, to be sure, but these are so structured that, in the aggregate, they occur only under predictable community conditions."
(1965: 55)

The orientation of the present study is similar to that of Dentler and Warshauer. It is my thesis that the "community conditions" of Dentler and Warshauer are analogous to the organizational facets of local school districts.

There are a multitude of ways in which student dropouts have been studied. For the ease of presentation, a scheme originally presented by Schreiber (1965: 11-12) has been adopted to report selected dropout studies. Topics included are: 1) who are the dropouts and what are they like; 2) which students will drop out (predictability); 3) what are the reasons for dropping out; and 4) what ways and means can be used to reduce the dropout rates.

Who Are the Dropouts

There are a number of research projects which focus on characteristics that describe the student who drops out of school. Miller, et al., (1964) report that dropouts are more likely to be male and from "broken" homes. Dropouts tend to score lower on

intelligence tests and they tend to leave school as soon as is legally possible in accordance with compulsory attendance laws.

Bredemeier and Toby (1972: 360-364) discuss the possibility that dropouts really did not make the decision to leave school. Instead, these students are often "pushouts" because they don't conform to the middle-class standards of the school. Bredemeier and Toby found that the dropouts they interviewed really did not dislike school, but felt that school was not interesting. Further, they felt that in general, teachers did tend to be fair to them.

Lammers (1967) reports that dropouts are not different just in time spent in school. Dropouts also compare unfavorably with high school graduates in native ability, verbal and numerical skills, personality adjustment and attitudes toward work and education. A large number of dropouts tend to live in urban slum areas.

Tesseneer and Tesseneer (1958) report that in Louisiana the students who graduated from high school in 1951 represented only 58.8% of the number of pupils enrolled four years previously in the ninth grade. The dropouts were characterized as coming from low-income families, being dissatisfied with teaching methods and being lured away from school by the possibility of immediate jobs.

A systems approach was used by Bertrand (1962) to investigate the dropout problem in rural Louisiana in the early 1960's. According to Bertrand, there are two social systems, the family and the school that operate to promote education. Withdrawing from school is a "dysfunctional" approach to education. Keeping this in mind, Bertrand found that the parents of dropouts tended to have less education than the parents of students still in school. The majority

of the dropouts' families were at the lower end of the socioeconomic scale. In school these rural dropouts had had trouble meeting the "higher" standards of peers and teachers.

Mannino (1962) conducted a study comparing 77 dropouts and 34 in-school students in rural Florida. In many ways, Mannino found that the families of the two groups were similar. However, two significant differences were that the families of in-school students showed more interest in and encouraged schooling, and also these families were more likely to be acquainted with other families who had children in college.

A study comparing urban and rural black dropouts in Georgia was conducted by Lyda and Copenny (1965). Rural dropouts were more likely to have a lack of interest concerning schoolwork. It was found that each group had special problems. The urban dropouts had special adjustment problems centering on vocations and economics, and morality and religion. The rural youth were more likely to experience problems in courtship, sex and marriage, and their social and recreational life.

Tseng (1972) compared male dropouts with male high school students. He found a highly significant difference in parental educational levels (.001 level). Also, he found that dropouts received less encouragement from their parents, and their fathers were more likely to be in lower status occupations. Further, the dropouts were more likely to have low motivation to achieve in school.

A thesis by Borne (1964) looked at school dropout rates in East Baton Rouge Parish, Louisiana, for recipients of Aid to Families with Dependent Children (AFDC). He found that these disadvantaged dropouts were likely to come from large families, to have fathers absent, to have highly mobile families, to be economically insecure, and to have minimum standard housing.

Welch (1968) wrote a thesis considering selected socio-economic status causes for school dropout rates in Louisiana. He found that the parish education level and the percent of 14-17 year olds in the labor market significantly affected dropout rates. Some factors had an effect just the opposite of what was expected. Welch found that in Louisiana in 1960 a decrease in the rural farm population was associated with an increase in the dropout rate. An increasing dropout rate was also associated with a decrease in the non-white population and an increase in the median years of school completed.

Which Students Will Drop Out

Many educators feel that if potential dropouts could be identified early enough, some special emphasis could be used to keep them in school. Consequently, there have been many projects attempting to predict those students who might eventually drop out.

Hunt (1966) found that the "culturally deprived" student is more likely to withdraw from school early. Often this student is deprived because his/her family is poor. Hunt also reported that non-white students were more likely to leave school before graduation.

Stroup and Robins (1972) attempted to predict school withdrawal using elementary school indicators. Their study was of St. Louis-born, black males who attended St. Louis elementary schools and had an IQ of at least 85. The variables they studied all preceeded high school entry. The most striking predictors were school failures and excessive absence from school. Other predictors were frequent school changes, early drinking habits, and early recorded delinquency. Parental education, father absenteeism and family size were not significant predictors of early school withdrawal.

A research project by Barker and Hensarling (1965) was useful in attempting to predict dropout rates. Dropout rates for 48 states were correlated with 24 demographic and socioeconomic status variables. The authors found that high retention rates were significantly correlated with low pupil-teacher ratios, low numbers of mental test failures, high amounts of revenue, larger percent of population urban, lower percent illiterates in the population, and lower levels of infant mortality (this was considered an index of the general standard of living). Potential dropouts can possibly be predicted because of their position in relation to some of these variables.

Cervantes (1966: 198-199) constructed a dropout prediction table. He lists 20 characteristics that are commonly found among youth who are potential dropouts. The characteristics most important for this study include:

1. Failure of one or more years
2. Irregular attendance
3. Frequent change of schools
4. Large families
5. Weak or absent father
6. Parents with low levels of education
7. Unhappy family situation
8. Resentful of authority.

If these characteristics can be identified in a student, it may be possible to prevent him from dropping out.

The Reasons for Dropping Out

Before educators can do anything to solve the problem of early school withdrawal, they must have some idea why the students are leaving school. Consequently, many researchers have attempted to find out the dropouts' reasons for leaving school early.

Moore (1954) conducted a study in Maryland in which he compared Negro dropouts with Negro graduates. By asking the dropouts directly, Moore discovered that the two principal reasons for leaving school were pregnancy (20.9%) and to work (16.6%). The dropouts were more likely to come from low-income families. The result was that students felt that they had to drop out in order to get a job and to "help out." Additionally, the parents of dropouts tended to have less formal schooling themselves. Consequently, these parents were less likely to encourage their children to stay in school and more likely to expect them to help at home.

Brown and Peterson (1969) list failing grades, learning defects and poor student-teacher adjustment as some principal causes of student withdrawal. Campbell (1966) admits that there are multiple reasons for dropping out, but he feels that one of the most important is that students who drop out tend to have low reading ability. Since all schoolwork is based on the ability to read, the students tended to suffer in all areas of education.

Williams (1966) conducted a study in which he attempted to compare dropout rates and dropout information from the fifty states. Thirty-six states replied to his request for information. He found that a study had been conducted in Tennessee that attempted to determine the causes of dropping out of high school. Interestingly, it was found that teachers and principals seemed to agree that the lack of adequate guidance was the principal reason for dropping out. However, the students that were interviewed only rated this as the fifth most prevalent cause of the ten possibilities. Other causes which were rated high by teachers and principals were the low mentality of the dropout student, the lack of an adequate curriculum and discipline problems. The dropouts themselves felt that the most prevalent reason for their dropping out was lack of finances to continue school. The parents who were questioned tended to agree that this was the principal reason for dropping out. The pupils rated discipline problems as the least likely reason for dropping out of school.

Ways and Means to Reduce Dropout Rates

It is problematic whether schools are capable of doing anything to reduce the dropout rate. There are conflicting opinions.

In Moore's study of Maryland Negro dropouts, it was found that:

"The most prevalent reasons for elimination in the Negro schools of Maryland are of such a nature that the schools can contribute only indirectly (underlining is mine) to their removal."
(1954: 122)

Scales tends to agree. He says:

"The schools can do very little about some of the characteristics that contribute to school dropouts....bad homes and bad neighbors..." (1969: 342)

The theme of this thesis, however, is that schools can do something to lower dropout rates. If there are school variables that tend to cause students to drop out, these factors can be changed. A similar viewpoint is expressed by Stroup and Robins.

They found that:

"The variables that we did not find important were variables which the school had no power to influence. The variables we did find important suggest activities the school system itself might experiment with in hopes of giving slum children a better chance."
(1972: 221)

The next step then is to look at the ways and means that a school system may use to cause a decrease in dropout rates. Scales (1969) conducted a study in California schools in which he compared certain factors of the schools with their dropout rates. Scales felt that the schools could compensate somewhat for "bad homes and bad neighbors" by doing better jobs in counseling, teaching

and extra curriculum. When counseling factors were correlated with dropout rates, Scales found highly significant associations when there was a full-time counselor per 350 students or less. Also, when counselors had planned programs for working with the parents of potential dropouts, there was a highly significant (.01 level) negative association with the dropout rate. Three of Scales' teaching factors proved to be significant. Significant associations with dropout rates were found when grading was based on the individual rather than the group (.01 level), when potential dropouts were assigned to special teachers with an interest in the dropout problem (.01 level), and when there were twenty or less students in the class of potential dropouts (.05 level). None of Scales' curriculum factors seemed to have much effect on the dropout rates.

Tannenbaum (1966) lists the factors that are involved in the role of education if dropout rates are to be lowered.

These include:

1. New programs to make up for deficits
2. A reduction in class size
3. More guidance workers, librarians, reading specialists, etc., are needed
4. Curriculum modification
5. Changes in the administrative and organizational structure
6. Improvements in the level of classroom instruction--more and better teacher training will be necessary

7. Working with the family of potential dropouts
8. Personal guidance for the dropout
9. Better vocational preparation for the dropout
at school

A program in School Management (1967) had as its main purpose a goal of reducing dropouts in the "intergrated" schools of Highland Park, Michigan. Sixty-five percent of the system was black and many of the students came from culturally deprived homes. The school system established school-community coordinators to work with parents. These coordinators attempted to teach the parents and to get them involved in school functions. The result was lower dropout rates.

Savitzky (1963) pointed out that all dropouts are not "lost." Many continue their schooling in evening high schools, trade schools, or commercial training schools. He feels that the dropout rate can be lowered by instituting programs to identify potential dropouts that meet their special needs.

A number of researchers have suggested basic ways in which the dropout could be helped. These include special guidance and counseling (Tesseneer and Tesseneer, 1958; Lyda and Copenny, 1965; and Campbell, 1966), more teacher training (Brown and Peterson, 1969; Campbell, 1966; and Lammers, 1967), and special curriculum to meet the needs of the dropout (Lammers, 1967; Tesseneer and Tesseneer, 1958).

The sociology of complex organizations was initially reported in this chapter. The next section dealt with educational systems

as specific examples of complex organizations. Finally, literature concerning dropout rates was reported. The next chapter will deal with the literature specifically related to school district organizational models.

CHAPTER III

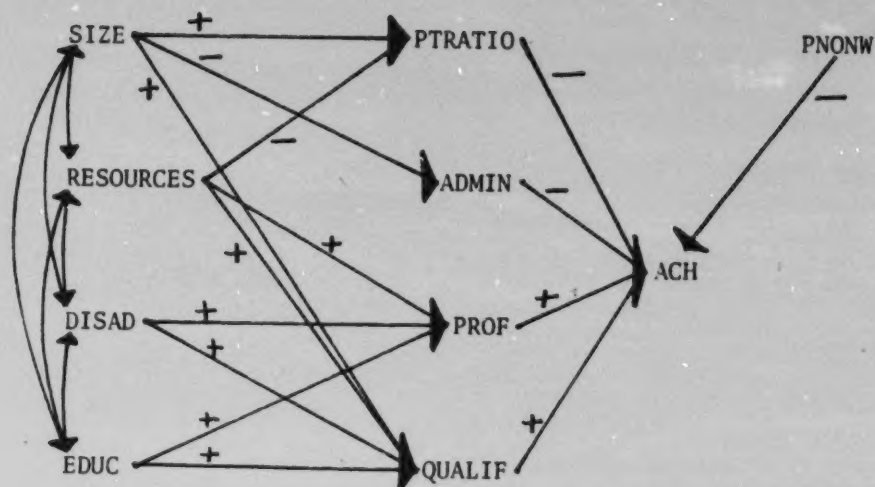
REVIEW OF SPECIFIC LITERATURE

The Bidwell and Kasarda Model

Bidwell and Kasarda (1975) used data from 104 Colorado school districts to examine the determinants of organizational effectiveness. These determinants were separated into three sets of variables: environmental conditions, district structural conditions and a staff qualification variable. Organizational effectiveness was measured by district median student achievement scores on reading and mathematics achievement tests. The determinants were linked in a causal model to predict the effectiveness of the school district organization with the predicted relationships indicated by +'s and -'s (see Figure 2).

The findings of Bidwell and Kasarda closely followed their predictions. Administrative intensity was significantly affected only by district size. The only significant effect on the professional support staff was fiscal resources. The effect of the parental socioeconomic status variables (EDUC and DISAD) was negligible. Pupil-teacher ratio was primarily affected by district size and fiscal resources. Qualifications of the staff were significantly affected by all of the environmental conditions except the percent nonwhite of the district population. Percent nonwhite had no effect on any of the structural or staff composition conditions of the school districts.

Figure 2. The Bidwell-Kasarda Model of School District Organization and Student Achievement



Source: Bidwell and Kasarda (1975: 60)

When considering how well the independent variables predicted organizational effectiveness and student achievement, Bidwell and Kasarda found that as pupil-teacher ratios decreased, the achievement scores increased. The same relationship was found between administrative intensity and student achievement. It was also discovered that there was a positive relationship between staff qualifications and achievement scores, but, this relationship was not significant when math achievement scores were used. The professional support variable did not follow the predictions of Bidwell and Kasarda, since very weak relationships were found between this indicator and achievement levels. The percent nonwhite in the district did have a significant depressing effect on median levels of student achievement. Overall, this model accounted for about 25 percent of the variance in median reading achievement scores and median mathematic achievement scores.

Bidwell and Kasarda found two results which they considered especially important. Most studies of organizations have indicated that size is a "prime mover" of variation. In this study, however, size had little overall effect on the output--achievement scores. Secondly, the authors of this study found that fiscal resources had significant total effects on output. Yet, most other studies have concluded that variation in resources had little to do with variation in achievement.

Critiques of Bidwell and Kasarda

Hannan, Freeman and Meyer

Hannan, Freeman and Meyer (1976) were especially interested in the large effects (the standardized regression coefficients) reported by Bidwell and Kasarda for their model of organizational effectiveness. They thought it rather unusual that the effects were so much larger than those reported by other researchers. The contention of these authors is that the discrepancy between the results of Bidwell and Kasarda and other researchers in the field can be explained by considering three errors in the analysis done by Bidwell and Kasarda.

Initially, Bidwell and Kasarda omitted some input variables that Hannan, et al., consider necessary. Specifically, studies have shown that student ability and socioeconomic status background are highly correlated with student achievement. Omission of these variables leads to inflated estimates of school district effects. Therefore, the Bidwell and Kasarda model could have better predicted school achievements with the inclusion of these variables.

The second flaw noted by Hannan, et al., concerns the levels of analysis in the organizational effectiveness model of Bidwell and Kasarda. Student achievement is an individual phenomenon; therefore, this variable should be measured on an individual basis. Bidwell and Kasarda, however, shifted their analysis to a higher level so that the student achievement data (which should be measured for each individual) was based on an aggregate (and measured instead for a group). The result of this action is that bias is magnified and large effects are reported.

The final flaw considered by Hannan, et al., is the use of standardized regression coefficients. Blalock has suggested that the comparison of such coefficients across populations can be very misleading (1971: 146-147). A major problem of standardized regression coefficients is that in an analysis such as the one conducted by Bidwell and Kasarda, the standardized coefficients are more sensitive to grouping bias. Generally, the coefficients will be biased upward as a result of the standardization. Bidwell and Kasarda used a variable that should have been measured on an individual (student achievement) and instead found a group measure for the aggregate of students in the district. The standard coefficients were sensitive to this grouping and were biased on the high side.

This can be illustrated by looking at the types of variance involved. The organizational variables are properties of school districts. As such, they will be constant for the individuals and the schools within a district. All variation in organization variables will be between-district variation. Grouping (into districts) will not reduce this variation. Conversely, much of the variation in achievement levels is between-individual variation. If these data are grouped (as they were by Bidwell and Kasarda for the districts), most of this variation is eliminated and total variation is lowered.

Standard regression coefficients are related to raw regression coefficients by:

$$b_{yx} \text{ (standardized)} = b_{yx} \text{ (unstandardized)} \frac{s(x)}{s(y)}$$

where $s(x)$ and $s(y)$ are the standard deviations of the independent and dependent variables, respectively. When the variation within the dependent variable (achievement) is eliminated and the total variation for achievement is lowered, then the $s(y)$ decreases. Consequently, the ratio $s(x)/s(y)$ increases. The result is a larger standard regression coefficient that has been biased due to grouping.

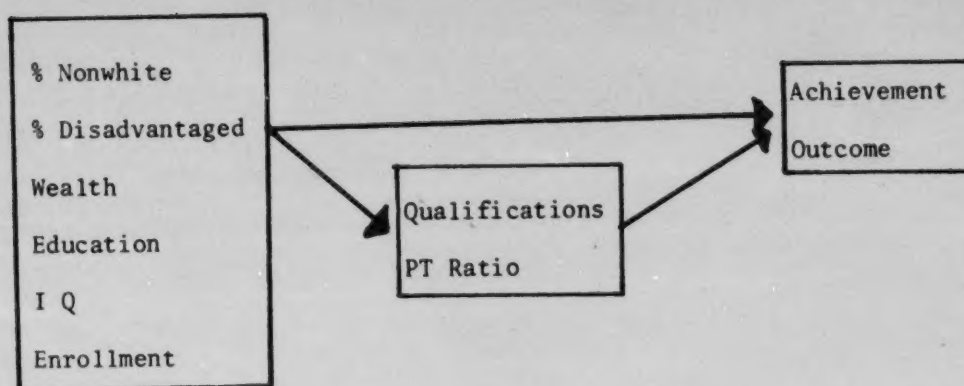
To illustrate their points, Hannan, et al., analyzed a data set from California school districts that was similar to the one used by Bidwell and Kasarda. Two new input variables were used: 1) an SES variable based on father's occupation; and 2) an IQ variable based on a teacher's estimation of a student's intelligence. Effects were calculated at the individual, the school, and the district levels. The results indicated that the omission of input variables did cause an overstatement of other effects. In addition, the use of grouping when it is inappropriate tended to give inflated effects. This led to improper inferences. Finally, the use of standard coefficients when they weren't acceptable also caused an upward bias in the resulting effects. The authors concluded "...that while organizational effects may be found in a properly specified model, these effects will undoubtedly be very much smaller than those reported by Bidwell and Kasarda." (1976: 143)

Alexander and Griffin

Alexander and Griffin (1976a) considered the Bidwell and Kasarda study as a model to predict student achievement through school district organizational attributes. They discovered two errors in the analysis that influenced the results. First, they felt that Bidwell and Kasarda exaggerated the practical importance of their results. Alexander and Griffin indicate that Bidwell and Kasarda failed to recognize the fact "...that academic achievement is first and foremost an attribute of individual students..." (1976a: 144-145). If this is the case, then most variation in the student achievement scores should be between students, or within-school variance. Variance between districts would be very small, but this phenomenon is what Bidwell and Kasarda are trying to explain. Second, the Bidwell-Kasarda results are suspect because of the omission of a variable measuring student academic ability which other studies have shown to be one of the strongest measured determinants of academic performance. The results will be somewhat biased due to the omission of this variable.

Alexander and Griffin attempted to establish these points by constructing a causal model similar to that of Bidwell and Kasarda (see Figure 3). They added one new input variable, IQ, and analyzed the data for the 24 school districts of Maryland. Their model explains a large part of the variance, but Alexander and Griffin point out that this is between district variance that is being explained. In other words, only 5 to 10 percent of the total achievement variance is situated between school districts, thus being explained by this model.

Figure 3. The Alexander-Griffin Model of School District Effectiveness



Source: Alexander and Griffin (1976a: 146)

To test the effects of IQ, the authors ran the model twice for each type of achievement test. The first run excluded the IQ variable from the model, the second run included it. The resulting coefficients showed that in practically every case, "...IQ is the most influential determinant of all dimensions of achievement at all grade levels" (1976a: 148).

The final point raised by Alexander and Griffin was not that the school district organizational variables have no effect on student achievement. Rather, they argued that, more importantly, any model of student achievement which excludes student academic ability as an input variable is incomplete, if not completely misleading.

Bidwell and Kasarda Rejoinder

Bidwell and Kasarda (1976a) responded to their critics by answering three of the principal criticisms that were made. These included: 1) the level of analysis; 2) the omission of input variables; and 3) the practical significance of the study.

The critics of Bidwell and Kasarda based their level-of-analysis criticisms on the mistaken assumption that the study was of student academic achievement. However, Bidwell and Kasarda stressed that their research was a study of organizational effectiveness. As such, they felt it valid to study the between district differences in aggregate student achievement. Bidwell and Kasarda were not trying to analyze antecedents of the academic achievement of individual students, but instead, the overall effectiveness of a school district as measured by the aggregate

achievement levels. The authors agree that the level of analysis should be appropriate for the research question. They argue, however, that the question of effectiveness of school districts necessitates an ecological, not an individual, approach.

Bidwell and Kasarda had two replies to the criticism about the omission of input variables. First, they agree with their critics that student ability and parental socioeconomic status do effect student achievement and should be included in the model. However, Bidwell and Kasarda argue that these variables already are contained in their model. According to Bidwell and Kasarda, the variables DISAD, EDUC, and PNONW are "proxy" measures and indicators of parental social rank and student ability. Bidwell and Kasarda admit that these are crude measures, but they feel that even so, the pertinent information on parental SES and on student ability (especially as it relates to parental SES) is included in their model of school district organizational effectiveness.

Second, Bidwell and Kasarda show that the measures of student ability are inadequate in the models of their critics (a point on which they were severely criticized). The selection of an "appropriate" measure of ability is extremely difficult. The use of teacher estimates of IQ, or the results of one test, are crude measures of student ability. Bidwell and Kasarda also point out that the "measured" IQ scores would be influenced by exposure to schooling (hence, exposure to school district organizational

factors). Consequently, the measured IQ is a function of the family's SES and also of the effectiveness of the schooling (the major part of the Bidwell-Kasarda research).

The final retort was to the criticism of the practical significance of the study. This criticism is based on the mistaken notion that the Bidwell-Kasarda research was a study of individual student achievement. Bidwell and Kasarda feel that their research is important, even within that realm on variation that can be affected by district organization. The authors also suggest that all within-school variance is not influenced only by individual factors. Schooling does affect the individual, therefore, school district organization should have some effect on variation within school districts as well as between school districts.

A Shot in the Dark--Alexander and Griffin Have More to Say

"We very much appreciate the opportunity to respond to Bidwell and Kasarda's reply to our comment on their school district effectiveness paper." (1976b: 755)

And so begins the third round of discussion about the Bidwell-Kasarda study of school district organizational effectiveness. In this instance Alexander and Griffin restricted themselves to the same issues discussed by Bidwell and Kasarda in their rebuttal.

Concerning the level of analysis, Alexander and Griffin point out that even if their measure of IQ is flawed, this does not discount the importance of the issue. Even if they have erred, Bidwell and Kasarda are not correct by omitting the measure. The fact still remains that Bidwell and Kasarda did omit a variable

concerning student ability. The idea of "proxy" measures is ill-conceived, because even if these measures were good surrogates, the results were distorted. While the variables in a model are supposed to represent one thing only, these variables seem to be meant to measure more than one thing. The purpose of mathematical modeling is to build a clear, concise, theoretical structure in which each individual unit (i.e., each variable) can be understood to represent and to explain one phenomenon. The distortion occurs because this sort of theoretical structure is not being assembled. Instead, the variables in the Bidwell-Kasarda model represent a "hodge-podge" of phenomena that could possibly be affecting the school district organizational effectiveness. Alexander and Griffin equate this with "shotgun regression analysis."

The final argument deals with the practicality of the study. Alexander and Griffin do not dismiss the issues as being unimportant. They reserve judgment on that count. But the authors do have strong reservations concerning the value of the results of the Bidwell-Kasarda study. The argument of Alexander and Griffin is that Bidwell and Kasarda have placed greater importance on the results of their study than these results warrant. They concluded with two points. First, the differences in academic achievement from district-to-district will be very small. Second, the small proportion of total variance that is accounted for between districts must still be appropriately examined to avoid misleading conclusions.

The Shot Hits Its Mark--Bidwell and Kasarda Answer

One gets the impression that Bidwell and Kasarda (1976b) are tired of this exchange. Nothing new is being discussed. Again they argue that their critics just cannot grasp the difference between ecological and individual level designs. The Bidwell-Kasarda project was a study of school districts, not of individual student achievement. Their interest was in organizational effectiveness; not in how the district organization influences individual level achievement. In summary, Bidwell and Kasarda point out that the differences in individual achievement between school districts are small, but the differences in district medians are substantial. Hence, the amount of variation being studied is significant if the use of median levels is valid.

They again point out that measured IQ is a function of schooling and the district's organizational variables. They again argue that they are not totally excluding input variables. Their proxy measures, while crude, still give some indication of SES and student ability. The claim that these proxy measures distort the results leaves them "dumbfounded" (in their own words). Finally, Bidwell and Kasarda admit that little has been gained by the continued exchange. Obviously, Bidwell and Kasarda and their critics just cannot agree on some aspects of this particular research.

CHAPTER IV

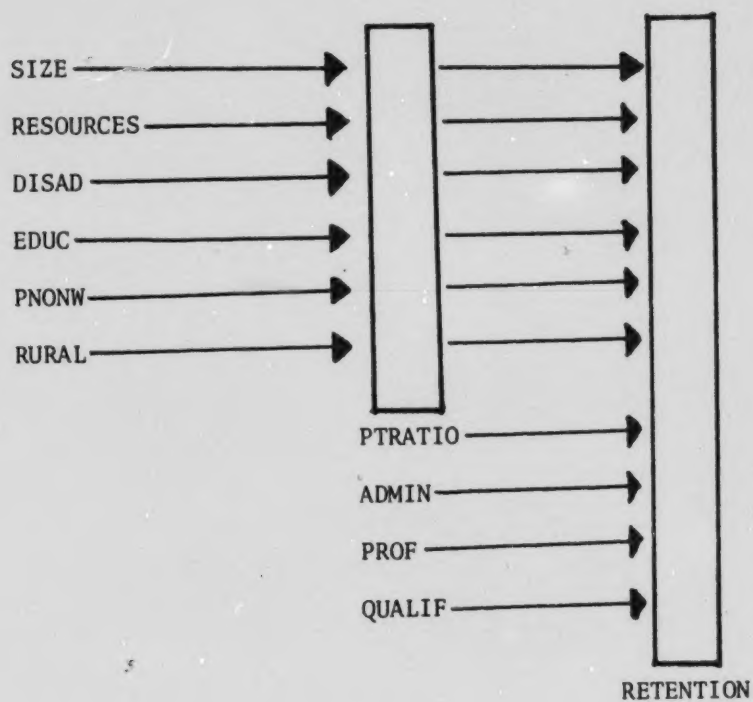
THEORETICAL FRAMEWORK

The purpose of this chapter is to describe the structural model that will be used to test the organizational effectiveness of Louisiana public school districts. The model will be compared to other school district organizational effectiveness models, then its unique characteristics will be explained. The hypotheses to be tested by this model are included in the final section of this chapter.

The Model

One major focus of this thesis has been to remedy certain of the problems in the Bidwell-Kasarda study. As an alternative to the Bidwell-Kasarda model and also to the models discussed by Hannan, et. al., and Alexander and Griffin, the model in Figure 4 is proposed. This new model consists of six environmental variables of the school districts, three variables regarding the district structure and one variable of staff composition. These variables are linked in a causal model to student retention rates for the school district. The environmental conditions are size, monetary resources, nonwhite population, percent of children from low-income families, educational levels of the parental risk population of the school district, (all of these were included in the original Bidwell-Kasarda model), and percent of the population of the school district classified as rural residents.

Figure 4. A Model of School District Organizational Effectiveness for Louisiana



The school district structural variables include the pupil-teacher ratio, the ratio of administrators to classroom teachers and the ratio of the supporting professional staff to the classroom teachers. The staff composition variable pertains to the qualification level of the certified staff.

Basically, the temporal ordering of the variables in this model is the same as that of Bidwell and Kasarda. The environmental variables are assumed to occur first in time. Logically, these environmental constraints would affect the way in which the school district would be organized and the type of structure that would exist. The intervening variables in this model are the district organizational structure variables and the staff composition variable. The three-stage model is completed by the dependent variable of school district student retention rates.

The Bidwell-Kasarda model has been reordered so that some variables have been rearranged, a new variable has been included and the dependent variable of student retention is used in lieu of student achievement. The percent nonwhite variable has been moved to a different position in the model. Following the lead of Alexander and Griffin, PNONW was also placed with the environmental variables. Bidwell and Kasarda labeled PNONW as an environmental variable, but in their model this variable was placed on the right side of the model with only a direct effect on student achievement. The Bidwell and Kasarda model was constructed such that PNONW affected no other independent

variable and was not affected by any other variable. Because of the large proportion of nonwhites in Louisiana (about 35% in 1970), it seemed prudent to include PNONW with the other environmental variables. It is considered that this variable occurs at the same point in time as the other environmental variables, and in addition PNONW may have some effect on the intervening variables of district structure and staff composition.

A variable measuring the percent of the district population who are rural residents has also been included in this model. This variable is included with other environmental conditions because it, too, describes the ecological conditions that exist within each school district. It was felt that this variable was important because of the large proportion of the Louisiana population which is classified as rural (approximately 34% in 1970). In addition, most texts on rural sociology will express the view that rural residents have a life style that is different from their urban counterparts. The writings of Smith and Zopf (1970), Wayland (1958), Nelson (1955), Rogers and Burdge (1972), and even Sorokin and Zimmerman (1929), indicate that there will be differences in schools and in students due to a rural life style.

The final change in this new model revolves around the dependent variable, student retention (RET). Bidwell and Kasarda, Hannan, et al., and Alexander and Griffin all used some sort of achievement test scores for their dependent variable. Recall the ongoing discussion about the level of analysis for this variable.

There was much consternation about whether the achievement level variable should be measured on the individual or district level. Some of the literature previously reviewed illustrated that retention of students should be considered a goal of the school district. Instead of achievement scores, graduation from high school can be used as a measure of goal attainment. This variable would vary little when used with individuals. Only a dichotomy of possible answers would exist. However, the retention variable becomes meaningful for the district as it gives a measure of how effectively the school districts are meeting their goals. In addition, this variable describes a characteristic of the school district, not of the individual students. Consequently, all of the variables used in this model occur at the same level of analysis. By redefining our variable, and measuring it on the district level, the arguments of the critics have been removed and a stronger model has been presented.

Also, this model reduces bias that is inherent in the Bidwell and Kasarda model. Bidwell and Kasarda took achievement data for individuals and grouped it for their district achievement measure. Hannan, et. al., indicate that grouping of data that should be measured for individuals will cause bias. However, in this new model, the data that are grouped are legitimate characteristics of the school district. Variation between individual students will have little effect on the retention rates. These rates must be calculated for the group to be meaningful. Hence, bias that is inherent in the Bidwell-Kasarda model will be removed from this model.

Hypotheses To Be Tested

Having reviewed relevant empirical and theoretical literature, the following propositions and hypotheses are proposed. These propositions and hypotheses will test the efficacy of the causal model in Figure 4 and especially the effectiveness of school district organization in Louisiana.

PROPOSITION ONE: Environmental conditions of the school district will be related to and affect school district structural conditions.

The following set of hypotheses drawn from Proposition One will be tested:

Hypothesis 1A: The size of the school district and the pupil-teacher ratio will be directly related. (+)

Hypothesis 1B: The size of the school district and the administrative intensity of the district will be inversely related. (-)

Hypothesis 1C: The size of the school district and the professional support component will be directly related. (+)

Hypothesis 1D: The fiscal resources of the school district and the pupil-teacher ratio will be inversely related. (-)

Hypothesis 1E: The fiscal resources of the school district and the administrative intensity of the district will be directly related. (+)

Hypothesis 1F: The fiscal resources of the school district and the professional support component will be directly related. (+)

Hypothesis 1G: The proportion of children from disadvantaged families and the administrative intensity of the district will be directly related. (+)

Hypothesis 1H: The proportion of children from disadvantaged families and the professional support component will be directly related. (+)

Hypothesis 1I: The parental education level and the pupil-teacher ratio will be inversely related. (-)

Hypothesis 1J: The parental education level and the professional support component will be directly related. (+)

Hypothesis 1K: The percent rural population and the pupil-teacher ratio will be directly related. (+)

Hypothesis 1L: The percent rural population and the administrative intensity of the district will be directly related. (+)

Hypothesis 1M: The percent rural population and the professional support variable will be directly related. (+)

Hypothesis 1N: The percent nonwhite population and the pupil-teacher ratio will be inversely related. (-)

Hypothesis 1P: The percent nonwhite population and the professional support component will be directly related. (+)

The size of the school district as measured by the average daily attendance will have varying effects on the structural variables of the school district. As Bidwell and Kasarda point out, when school enrollment rises, the extra pupils are rationed among the fixed number of teachers (1975: 61). The result should be rising PTRATIO's associated with increasing SIZE (Hypothesis 1A). However, a negative association is predicted between SIZE and ADMIN (Hypothesis 1B). To some extent, the number of administrators can remain fairly constant and continue to complete their jobs as the number of pupils increases. The opposite is probably true when the professional support variable is considered though. As the number of pupils increases, the

number of professionals needed to compliment the work of the teachers should increase also. Consequently SIZE and PROF should be directly related (Hypothesis 1C).

Fiscal resources will also have varying effects on the structural variables of the school district. It is predicted that fiscal resources will be related negatively to PTRATIO (Hypothesis 1D) and positively to ADMIN (Hypothesis 1E), and PROF (Hypothesis 1F). If a district has more capital resources, it should be able to hire more classroom teachers, thus lowering the PTRATIO. The same basic concept should hold true for ADMIN and PROF. A district with more money to hire more classroom teachers, should also have more money to hire more professionals and more administrators. It is also possible that more administrators will be needed to supervise the spending of more money in more different ways.

Bidwell and Kasarda suggest that children from disadvantaged families tend to be "less motivated and less able" (1975: 62). If this is the case, then an increasing number of children from these families should require an increase in some types of the professional support staff (special education, remedial reading, etc.). Hence, DISAD and PROF should be directly related (Hypothesis 1H). Also, because of special programs (e.g., "Free Breakfast," "Reduced Lunches"), it is possible that more administrators will be required. The result is that DISAD and ADMIN will be directly related (Hypothesis 1G).

It has been suggested by Bidwell and Kasarda that the parental education level can be used as an indicator of desired education levels of parents for their children" (1975: 62). this is the case, then it should follow that school districts with parents that have high levels of education will have to create better conditions at school for the children of those parents. Consequently as EDUC increases, the PTRATIO should decrease (Hypothesis 1I) and the PROF should increase (Hypothesis 1J). This is because "better conditions for the children" will include smaller classrooms and a maximum amount of student services.

The rural variable should be positively correlated with the pupil-teacher ratio (Hypothesis 1K). There will be fewer pupils in rural schools, but there also will be fewer teachers. Some rural sociologists have suggested the need for a rural teacher to be a "jack-of-all-trades" capable of teaching many subjects (Smith and Zopf, 1970). One-teacher schoolhouses may have become history (there were still two in Louisiana in 1973-74), but some rural areas still have schools with just one English teacher, one math teacher, etc. If the rural students attend a consolidated school, the same positive relation should hold true. There will be more teachers, but because there are many more students from a very large geographical area, the pupil-teacher ratio should still be high.

A positive correlation should be obtained for the rural variable and the administrative (Hypothesis 1L) and professional (Hypothesis 1M) variables. To an extent, some administrators

and professional staff will be necessary regardless of the size or location of the school district. There will always be a need for principals, superintendents, librarians, etc. Also, because of the consolidation of schools in rural areas, there will be a greater chance for more administrators and professional support staff members.

The effect of the PNONW variable on the structural variables of the school district will be varying. The PNONW should be inversely related to the PTRATIO (Hypothesis 1N). This is the case because a higher PNONW is more likely to occur in situations where many other factors (for example, urban areas) are helping to keep the PTRATIO down. The same argument used for DISAD holds true for PNONW when its relationship with PROF is considered. An increase in PNONW should be associated with an increase in PROF (Hypothesis 1P) because there may be a need for special remedial services for these students.

PROPOSITION TWO: School district environmental conditions will be related to and affect the school district staff composition.

The following set of hypotheses drawn from Proposition Two will be tested.

Hypothesis 2A: The size of the school district and the qualifications of the staff will be directly related. (+)

Hypothesis 2B: The fiscal resources of the school district and the qualifications of the staff will be directly related. (+)

Hypothesis 2C: The proportion of children from disadvantaged families and the qualifications of the staff will be inversely related. (-)

Hypothesis 2D: The parental education level and the qualifications of the staff will be directly related. (+)

Hypothesis 2E: The percent rural population and the qualifications of the staff will be inversely related. (-)

Hypothesis 2F: The percent nonwhite population and the qualifications of the staff will be inversely related. (-)

Some of these hypotheses are very similar to the relationships predicted by Bidwell and Kasarda (1975). They also predicted positive relationships between SIZE, RESOURCES, and EDUC and QUALIF. School district size (the number of pupils) usually should be an indicator of community size. Bidwell and Kasarda argue that larger communities would be more likely to have larger pools of well-qualified teachers (1975: 61). Hence, as school district size increases, the number of more qualified teachers should increase (Hypothesis 2A).

Since schools are not in business to accumulate money, they are more likely to spend what resources they have. Bidwell and Kasarda suggest that school districts with greater fiscal resources will be likely to spend this extra money for more qualified teachers (larger salaries to attract better teachers). Consequently, RESOURCES and QUALIF should vary together (Hypothesis 2B).

Status attainment literature has shown that the higher the level of parents' education, the higher their aspirations for their children's education (see, for example, Blau and Duncan, 1967; Haller and Sewell, 1957; Haller and Woelfel, 1972; Sewell, Haller, and Ohlendorf, 1970; and Sewell, Haller, and Portes, 1969).

Bidwell and Kasarda suggest that one way in which parents may hope for these aspirations to be met is by having better qualified teachers for their children (1975: 62). The result is that as the education of the parents increases, the number of higher qualified teachers should increase also (Hypothesis 2D).

To some extent, the variables DISAD and PNONW can be considered indicators of the general standard of living. It is being predicted that school districts with a low standard of living will not be able to attract the better qualified teachers. In other words, as the number of children from low income families and the nonwhite population of a school district increase, the number of more qualified teachers in that school district should decrease (Hypotheses 2C and 2F).

The percent rural population should be negatively associated with the variable of staff qualifications. Smith and Zopf (1970) and others have indicated that classroom teachers in rural areas are less qualified to teach. Generally, fewer rural teachers have advanced degrees. This has historically been the case in Louisiana public schools (see Smith and Bertrand, 1963; and Falk and Comfort, 1976). As the rural variable increases, the qualification variable should decrease (Hypothesis 2E).

PROPOSITION THREE: School district environmental conditions, school district structural variables, and school district staff composition will be related to and affect school district retention rates with the effect of school district environmental conditions on school district retention rates being mediated by the school district structural conditions and the staff composition.

The following set of hypotheses drawn from Proposition Three will be tested.

Hypothesis 3A: The size of the school district and the retention rates for the district will be inversely related. (-)

The logic of this assumption is best provided by Scales (1969) and Goodman (1964). Scales correlated dropout rates with the number of students in a school per counselor. He found a highly significant (.01 level) correlation between these variables. Goodman suggests that it is "positively harmful" for students to be in large schools. As school size increases, standardization sets in, and students become impersonal objects. This impersonality, Goodman argues, may lead to early school withdrawal by borderline students.

Hypothesis 3B: The fiscal resources of the school district and the retention rate for the district will be directly related. (+)

Barker and Hensarling (1965) correlated dropout rates for the forty-eight mainland states with the state and local revenues provided for the schools. They found a highly significant positive correlation for these factors. Tesseneer and Tesseneer (1958) suggest that retention rates could be raised if funds were increased for the schools to provide special curriculum offerings of interest to the potential dropouts.

Hypothesis 3C: The proportion of children from disadvantaged families and the retention rates for the district will be inversely related. (-)

A number of studies have found that some measure of low socioeconomic status is consistently associated with the act of

dropping out. As this measure increases for the population, the retention rate decreases. Some of the labels that have been used to measure this disadvantaged position include the "culturally deprived" (Hunt, 1966; School Management, 1967), minimum standard housing and economic insecurity (Borne, 1964), very poor families (Dentler and Warshauer, 1965), low socioeconomic status (Bertrand, 1962; Moore, 1954), and infant mortality as an index of the general standard of living (Barker and Hensarling, 1965).

Hypothesis 3D: The parental education level and the retention rates for the district will be directly related. (+)

Much research has shown the association between the amount of education of the parents and the amount of education of the children (see, for example, Tseng, 1972; Bertrand, 1962; and Moore, 1954). When comparing dropouts and high school students, Tseng found highly significant differences (.001 level) in the education levels of the parents. Bertrand and Moore both found that the parents of in-school students tended to have more education (or were more likely to be high school graduates) than the parents of students who dropped out. In addition, research by Welch (1968), Dentler and Warshauer (1965), and Barker and Hensarling (1965) have shown that the education level of the adult population level in general also is associated with the school retention rates. Adult illiteracy had a highly significant correlation with retention rates in the research by Barker and Hensarling. The general parish education level was a significant determinant of dropout rates in the study by Welch.

Hypothesis 3E: The percent rural population and the retention rate for the district will be inversely related. (-)

Barker and Hensarling (1965) found a highly significant positive correlation between the urban population and retention rates. Conversely then, the rural population should be negatively correlated with retention rates. Welch (1968) hypothesized that the rural population would be negatively related to dropout rates. However, in his study of Louisiana, he found that a decrease in the rural farm population was associated with a decrease in the retention rate.

Hypothesis 3F: The percent nonwhite population and the retention rate for the district will be inversely related. (-)

Hunt (1966) declares that a nonwhite student is more likely to drop out of school than a white student. Welch (1968) hypothesized a similar relationship, but instead he found that a decrease in the nonwhite population was associated with a decrease in the retention rate.

Hypothesis 3G: The pupil-teacher ratio and the retention rate for the district will be inversely related. (-)

This relationship has been discussed by Tannenbaum (1966), Goodman (1964), Scales (1969), and Barker and Hensarling (1965). Tannenbaum and Goodman both indicate that just a reduction in class size will have some effect on dropout rates. Scales found a significant (.05 level) correlation between small classes for potential dropouts and the retention rate. Barker and Hensarling found a highly significant negative correlation between retention rates and the pupil-teacher ratio.

Hypothesis 3H: The administrative intensity and the retention rate of the district will be directly related. (+)

Evidence to support this proposition is provided by Miller, et al. (1964) and Tannenbaum (1966). Both studies indicate that the organizational style and structure of schools affect what takes place within the schools. Consequently, they argue that changes in the administrative structure should be a major emphasis in order to evoke change in retention rates. This proposition is just the opposite of that predicted by Bidwell and Kasarda.

Hypothesis 3I: The professional support component and the retention rate of the district will be directly related. (+)

A number of studies (see, for example, Williams, 1966; Campbell, 1966; Lammers, 1967; Savitzky, 1963; Lyda and Copenny, 1965; Tesseneer and Tesseneer, 1958; Tannenbaum, 1966; and Scales, 1969) have indicated the accuracy of this proposition. Basically, these researchers have suggested that by emphasizing more and better guidance and counseling, and by increasing subject specialists (such as reading specialists, librarians, etc.), retention rates for the school districts should be increased.

Hypothesis 3J: The qualifications of the staff and the retention rate of the district will be directly related. (+)

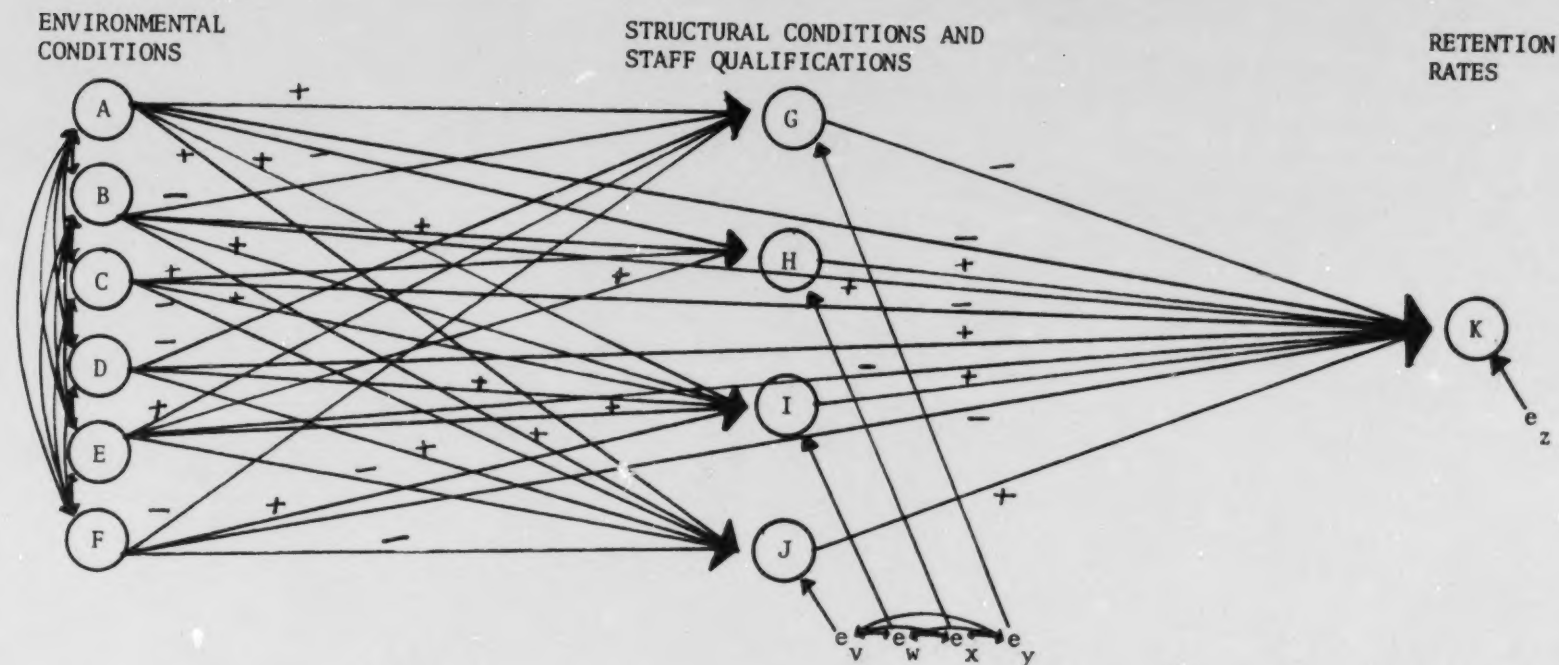
One of the major ways to improve the retention rates of school districts is to employ better-trained and more qualified teachers. Brown and Peterson (1969) feel that teachers must

maintain a high level of competency in order to make their classes stimulating and interesting for potential dropouts. Similar suggestions for improved classroom instruction and professional growth of teachers are delivered by Lammers (1967), Campbell (1966), and Tannenbaum (1966).

The hypothesized relationships that have been suggested in this chapter are graphically presented in Figure 5. A plus symbol (+) means that a positive (or direct) relationship was hypothesized. A minus symbol (-) refers to a hypothesized relationship that was negative (or inverse).

The methods and procedures used in this thesis are discussed in the next chapter. Then, in Chapter VI, the relationships that have been hypothesized here will be analyzed in light of the causal model that has been formulated for Louisiana public school districts.

Figure 5. A Causal Diagram of a Model of School District Organizational Effectiveness for Louisiana



The variables are: A = school district size; B = fiscal resources; C = disadvantaged children; D = parental education; E = rural population; F = nonwhite population; G = pupil-teacher ratio; H = administrative intensity; I = professional support component; J = qualifications of the staff; and K = retention rate.

CHAPTER V

METHODS AND PROCEDURES

The aim of this chapter is to present the methods and procedures that were employed in this research. The items to be discussed in the six sections of this chapter include: 1) the method of secondary analysis; 2) the sample; 3) the source of the data; 4) the operationalization of the variables; 5) the data transformations; and 6) the analytical techniques that were utilized.

The Analysis of Secondary Data

Often a social scientist cannot afford the financial cost of conducting his desired research, especially if it entails a large survey. In addition, he may not be able to spend the time (months in many cases) that is necessary to collect his data. However, the researcher may be able to utilize secondary data to address his research topic. A wealth of such data exists and is available for use. Since the government is one of the largest collectors of social science information, it often makes these data available free or at only a minimum cost. This thesis is largely an attempt to replicate Bidwell and Kasarda, therefore, the same research procedures utilized by them have also been employed in this thesis. Thus, this study is an analysis of secondary data already collected by governmental agencies (i.e., the United States Census Bureau and the Louisiana State Department of Education).

Governmental data are just part of a larger body of information that is classified as "available materials." This material is defined as "preexisting of precoded data which were not collected for the specific ends of a given social researcher" (Forcese and Richer, 1973: 179). That is the case with nearly all of the governmental statistics. These data were collected to meet some demands of government and/or its bureaucracy. However, these data can be utilized by social scientists for specific social research.

The most common form of these data is the United States Census (Forcese and Richer, 1973: 181). Most sociologists consider this source to be highly reliable and valid (Angell and Freedman, 1953: 322). People are required by law to take part in the census. This means that it has the backing of the government. The Bureau itself is constantly striving for accuracy. Some Bureau members have said: "...we should strive for perfection and try to get the most accurate measure possible of anything we are trying to measure" (Hansen, et al., 1953: 421). The concreteness of these results must be based on methodological rigor. Angell and Freedman have said: "...the Census Bureau provides a model in many respects for methodological aspects of survey work. When known sources of error exist, they are usually pointed out in census publications" (1953: 322).

Benefits of Governmental Data

An initial benefit of governmental data is of a practical nature. Governmental statistics economize on money, time, and

personnel (Hyman, 1972: 6). Analysis of existing data costs less, takes less time, and fewer helpers are needed. Hyman indicates that approximately 40% of the research budget can be saved by not having to collect one's own data.

Another benefit revolves around the method of collection of the data. Forcese and Richer place governmental data high on a continuum (from low to high) in reliability and prequantification (1973: 179-180). By reliability, they are considering the extent to which the data are accurate representations of some phenomenon and the possibility that this can be replicated. Prequantification refers to the extent that the data is amenable to operationalization and tabulation. These authors indicate that governmental data are the highest rated form of available materials on these two counts.

The final major benefit of governmental data is its accuracy. Weiss (1972: 57) feels that accuracy is a "sometimes thing." To some extent, she may be right; especially when local governments are considered. Also, with something as large as the census there naturally will be some problems with accuracy. Many enumerators are free from absolute authority. There have been cases where enumerators made up answers and filled in census questionnaires at their own leisure (Forcese and Richer, 1973: 182). However, these must be the extreme cases. After the 1950 census, the United States Census Bureau undertook a study to see how accurately people were counted (Hansen, et al., 1953: 420). This study found that the total omission rate of persons who should have

been counted was only 2.3%. With an overenumeration of 0.9 percent, this resulted in only a net of 1.4 percent of the population not being counted that should have been. In addition it was found that two thirds of those not counted live together in households that were omitted entirely. There probably are very few groups outside the government that can survey an entire population and have only a 1.4% underenumeration.

Problems of Governmental Data

One problem with governmental data is inexactness (Weiss, 1972: 58). This would apply to all analysis of available materials. Since the data being used were not collected specifically for the current research project, they obviously won't be exactly what was needed. Difficulties may exist in the operationalization of some variables because of this.

Another characteristic of governmental data that may be problematic is that these data are based on geographical locales (Weiss, 1972: 58). The data are not necessarily collected and recollected for the same people, but rather for the same area. As people constantly migrate, numbers are subject to change. The stimulus being tested may have had no effect on the data, but they would appear to be changed due to different respondents.

The Sample

For this study to be comparable to Bidwell-Kasarda study, it is necessary to have a sample of school districts that is representative so that results can be generalized to the entire

population. Bidwell and Kasarda had a sample of 104 of the Colorado school districts that accounted for 90 percent of the public school students in Colorado in 1969-70. Due to a rather unique characteristic of Louisiana school districts, complete coverage (100%) of the public school students in Louisiana in 1974-75 was possible in this thesis. There are 64 school districts in Louisiana that are based on the 64 parishes. None of these districts overlap across parish boundary lines. In addition, there are also two other school districts within the city limits of Monroe and Bogalusa. These districts also coincide with the geographical boundaries of the cities. Consequently, the data that have been collected are for the entire public school population. Only minimal sampling error should be present in this study, but measurement error could still be problematic.

Although there was complete coverage of the 66 Louisiana public school districts, this is still a "sample" that occurs at one unique point in time. Hence, the sample statistics found in this study can be used to estimate the population parameters.

Data Sources

The data that were required for this study to be comparable to that of Bidwell and Kasarda were readily available. Just as in the Bidwell-Kasarda study, these data were all previously collected by the federal government and the state government. The sources of the data for this thesis were the 1970 Census of the population for the state of Louisiana and the 1974-75 annual report of the Louisiana State Department of Education (part of the data required

for the retention rate was found in the 1971-72 annual report of the Louisiana State Department of Education). The data on the children from low-income families, the percent nonwhite, the percent rural residents and the educational level of the parental risk population were obtained from the 1970 Census reports. Since school district geographical boundaries coincided with parish and city boundaries, there was no need to recode any of these data across census tracts. The data for the remaining variables were obtained from the annual reports of the Louisiana State Department of Education.

Operationalization of Variables

When operationalizing the variables for this study, the goal was to make these variables as similar as possible to those of Bidwell and Kasarda. In this study, the variables and their operationalization are as follows:

Environmental Conditions:

School District Size - operationally defined as the average daily attendance of the school district. (SIZE)

Fiscal Resources - the total of all revenue received by the school district (local, state and federal), divided by the average daily attendance of the district. This division tended to standardize the variable for the size of the district. (RESOURCES)

Disadvantaged Students - the percent of all children (ages 0-18) residing in the school district, who come from families with incomes below the nationally defined poverty level of 1970. (DISAD)

Parental Education - the percent of males 20-49 years old and females 15-44 years old residing in the school district who have completed at least four years of high school education. This variable is based on the parental "risk" population--those who could be parents; not necessarily those who are. (EDUC)

Percent Nonwhite - the percent of the population residing in the school district who are classified by census definition as nonwhite. (PNONW)

Percent Rural - the percent of the population residing in the school district who are classified by census definition as rural residents. This variable was not included in the Bidwell-Kasarda model. (RURAL)

Structural Conditions:

Pupil-Teacher Ratio - the average daily attendance of the school district divided by the number of full-time teachers. (PTRATIO)

Administrative Intensity - the ratio of administrators to classroom teachers. Administrators are defined as principals, superintendents, directors, supervisors and business agents. (ADMIN)

Professional Support Component - the ratio of professional support staff to classroom teachers. The professional support staff is defined as librarians, guidance counselors, visiting teachers, agricultural agents, home demonstration agents, and medical personnel. (PROF)

Staff Composition Conditions:

Certified Staff Qualifications - the percent of the total certified staff with at least the Master's degree. The certified staff is defined as principals and classroom teachers. (QUALIF)

Dependent Variable:

Retention - the retention rate (or "holding power") of the school districts. This is the percent of all ninth graders in the school district in 1971-72 who graduated from high school in 1974-75. (RET)

Data Transformations

There were two data transformations that were utilized in this thesis. These included the logarithmic transformation ($\log_{10}$) and the arcsin transformation.

The school district size variable (SIZE) was transformed via logarithms to correct the variable for a skewed distribution. This transformation had been originally employed by Bidwell and Kasarda. The problem with this variable is that there are a few very large school districts that tend to bias the parameters associated with the distribution. An example of this type of distribution is graphically portrayed in Figure 6. The $\log_{10}$ transformation tends to compress these few skewed values into a more normal distribution. Snedecor and Cochran state that logarithms are used to stabilize the variance (1967: 329). The use of logarithms in this study was considered appropriate since the transformation did standardize the SIZE variable resulting in a nearly normal distribution.

The purpose of the arcsin transformation is the opposite of that of the logarithmic transformation. The arcsin transformation is utilized when the distribution of a variable needs to be expanded. This transformation was appropriate for two of the variables in this study--PROF and ADMIN. In both cases there was a possible range from 0% to 100%, yet all of the values occurred in a fairly normal distribution between 3% and 15%. This is graphically portrayed in Figure 7. Snedecor and Cochran point out that this transformation will increase the variance of the distribution by spreading out the values near the ends of the scale (1967: 328).

Once these two variables were transformed the next step was to use them in the causal model. It was found that even though both

Figure 6. A Portrayal of the Approximate Distribution of the SIZE Variable Before the $\log_{10}$ Transformation

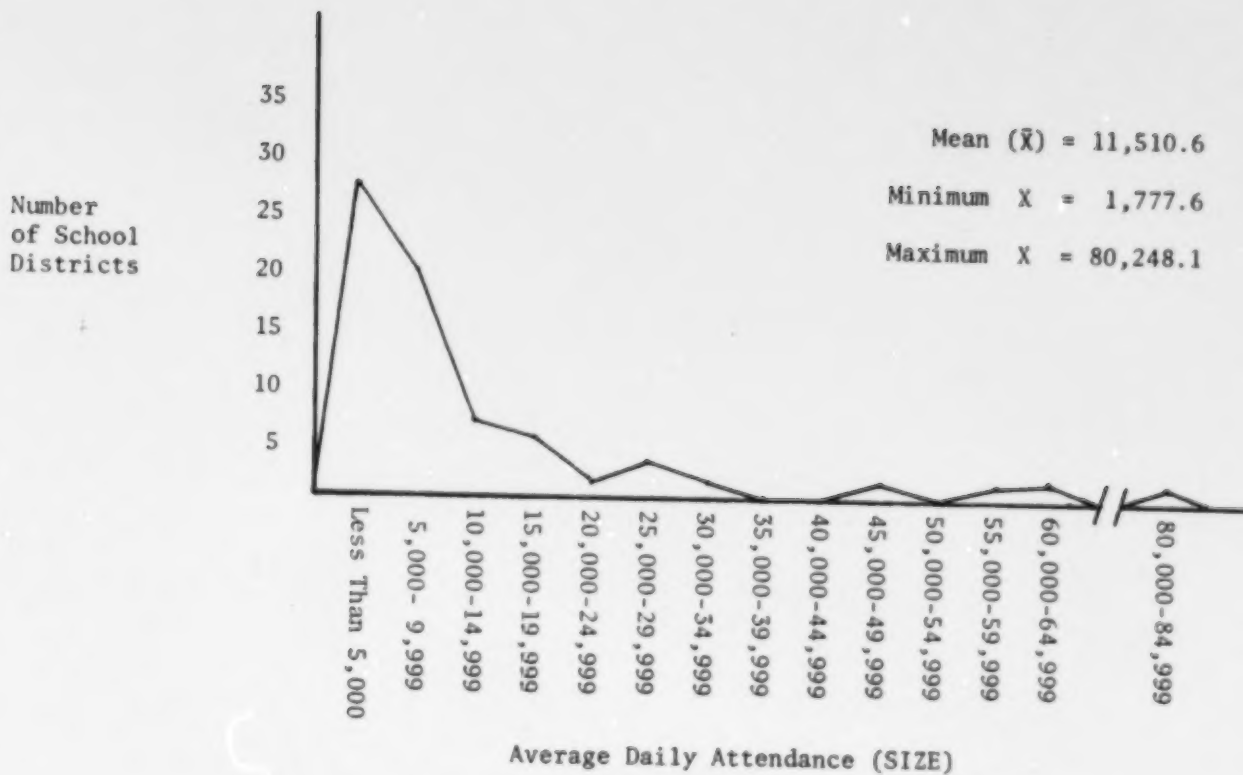
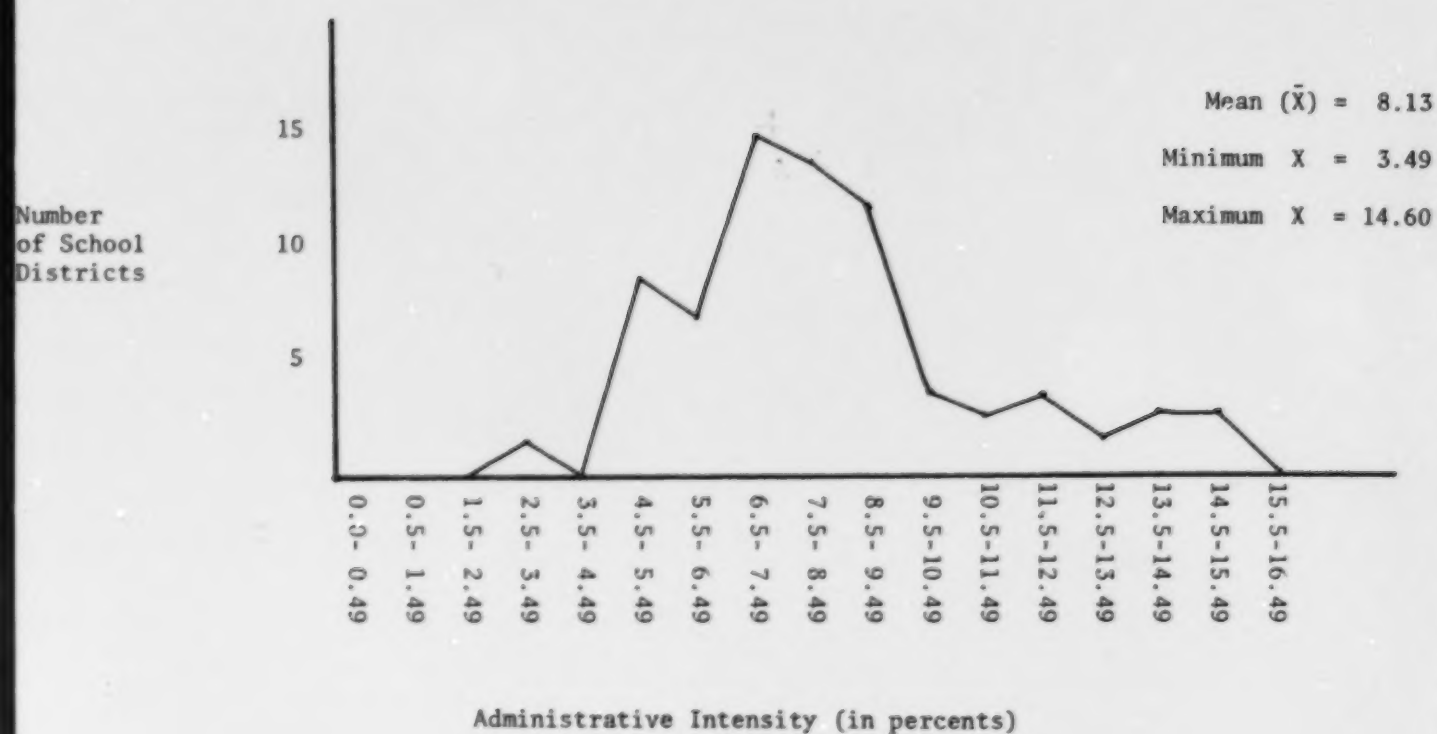


Figure 7. A Portrayal of the Approximate Distribution of the ADMIN Variable Before the Arcsin Transformation



of these variables required the arcsin transformation, they behaved in diametrically opposite ways. With one variable the R^2 's would increase, while they were decreasing with the other variable. The decision was made that the most ethical thing to do was to avoid the arcsin transformation completely, especially since Bidwell and Kasarda had not used this transformation. The transformation would not be used with just one variable. In a situation of this sort, it was felt that the original raw scores would be the best possible indicators for this study. Also, the distributions are fairly normal, even though they are condensed.

Consequently, it seemed logical to only use the logarithmic transformation. Since the arcsin transformation did not behave consistently, it was not used in the final analysis.

Analytical Techniques

The technique of path analysis has been an accepted form of research for nearly a half century. From its inception by Sewell Wright in the 1920's, it has been employed almost exclusively by population geneticists (see Li, 1955: 144-171; and Li, 1975). It has only been in the last decade that social scientists have realized the value of path analysis in their research (see, for example, Duncan, 1966; Land, 1969; and Heise, 1969). Path analysis has become a useful tool in combining theory and data in social science research. According to Land (1969: 4) the causal model is written as a set of equations based on past research and current theory. These structural equations lead to

an evaluation of the model. After the empirical evaluation, the causal model is either supported or reformulated. Land suggests that inadequacies in the model will precipitate a reconstruction of the theory that originally generated the model (1964: 4). Duncan suggests that the most valuable quality of path analysis is its ability for interpretation (1966: 7). The main goal of path analysis is not to discover causes, but rather to interpret empirical results in order to formulate more substantive theory.

The diagramming of a structural model is very specific. The exogenous variables are assumed to be predetermined. All variation in these variables should be caused by variables outside the model. The remaining variables (the endogenous variables) are assumed to be dependent on these predetermined ones. The path diagrams between these variables are drawn according to certain conventions. These include:

1. The postulated causal relations are represented by unidirectional arrows extending from each determining variable to those variables dependent on it (Land, 1966: 6).
2. Postulated noncausal correlations between exogenous variables are symbolized by two-headed curvilinear arrows (Land, 1969: 6).
3. Residual variables are represented by unidirectional arrows leading from the residual variable to the dependent variable (Land, 1969: 6-7).

4. The quantities entered beside the arrows on a path diagram are the symbolic or numerical values of the path and correlation coefficients of the postulated relationships. A definite form is followed in representing the symbolic form of the path coefficient. This coefficient is represented by p_{ij} where the subscript "i" denotes the dependent variable and the subscript "j" denotes the determining variable (Land, 1969: 7).

However, the technique of path analysis cannot be used non-discriminately. Heise has pointed out that there are a number of assumptions that must be met before the use of path analysis is meaningful in research. The following assumptions are considered:

1. "In the system of interest, change in one variable always occurs as a linear function of changes in other variables." (Heise, 1969: 44)
2. "The system of concern contains no reciprocal causation or feedback loops; that is, if x cause y, y cannot affect x either directly or through a chain of other variables." (Heise, 1969: 45)
3. "The causal laws governing the system are established sufficiently to specify the causal priorities among variables in a way that is UNDEBATABLE." (Heise, 1969: 52)
4. "The disturbances of dependent variables are uncorrelated with each other or with the inputs; thus it is necessary that ALL system inputs are entered explicitly into analyses." (Heise, 1969: 56)

5. "The usual methodological assumptions involved in multivariate regression analyses are met." These assumptions include: independent sample units; interval or ratio scale measurement; homoscedasticity (similar variance among cases of the system variables); and the sources of variation for each variable in the system are sufficiently diverse so that the correlations between variables are not extremely large in absolute magnitude (i.e., multicollinearity), (Heise, 1969: 57).
6. "The measuring instruments used to obtain empirical data have high reliability." (Heise, 1969: 59)

The robustness of a test refers to the reliability that can be placed in the test results when all of the assumptions are not met. Bohrnstedt and Carter (1971) consider the robustness of regression (and path) analysis. They indicate that this type of analysis is adequately robust except in the presence of measurement and specification error. Consequently, if some of the assumptions listed by Heise can't be met, it still may be possible to use path analysis and to have confidence in the results.

Land (1969: 24-29) has discussed a multistage, multivariate model in which the exogenous variables affect the dependent variable not only directly, but also through the intervening variables. In short, the effect of the exogenous variables is mediated by the intervening variables. The model tested in this thesis is an application of this kind of modeling which has been described by Land (1969). The result is the three-stage, eleven-variable

model presented earlier in Figures 4 and 5. The unexplained variance of the endogenous variables is represented by the residual variables (e_v , e_w , e_x , e_y , and e_z). These residual variables are present in the system to represent the combination of all outside influences that contribute to the unexplained variance.

The structural equations which compose the path model portrayed in Figure 5 are:²

$$\begin{aligned}
 (1) \quad G &= p_{GA}^A + p_{GB}^B + p_{GC}^C + p_{GD}^D + p_{GE}^E + p_{GF}^F + p_{Gy}^e_y \\
 (2) \quad H &= p_{HA}^A + p_{HB}^B + p_{HC}^C + p_{HD}^D + p_{HE}^E + p_{HF}^F + p_{Hx}^e_x \\
 (3) \quad I &= p_{IA}^A + p_{IB}^B + p_{IC}^C + p_{ID}^D + p_{IE}^E + p_{IF}^F + p_{Iw}^e_w \\
 (4) \quad J &= p_{JA}^A + p_{JB}^B + p_{JC}^C + p_{JD}^D + p_{JE}^E + p_{JF}^F + p_{Jv}^e_v \\
 (5) \quad K &= p_{KA}^A + p_{KB}^B + p_{KD}^D + p_{KE}^E + p_{KF}^F + p_{KG}^G + p_{KH}^H + \\
 &\quad p_{KI}^I + p_{KJ}^J + p_{Kz}^e_z
 \end{aligned}$$

Path coefficients were obtained from these structural equations. When standardized betas were used, the path coefficient represented the amount of change in the endogenous variables for each standardized unit change in the determining variable. Li (1955; 149) has indicated that the path coefficient is an absolute number without any physical unit--no matter what the actual unit of measurement used for the variable. It is similar to correlation

²The variables are: A = school district size; B = fiscal resources; C = disadvantaged children; D = parental education; E = rural population; F = nonwhite population; G = pupil-teacher ratio; H = administrative intensity; I = professional support component; J = qualifications of the staff; K = retention rate.

coefficients in this respect, but on the other hand path coefficients do have direction. Li says that it can be shown that path coefficients are equivalent to the "standardized" regression coefficients which refer to "standardized" variables rather than to variables in their original physical units.

CHAPTER VI

ANALYSIS AND INTERPRETATION

In this chapter, analysis is reported which assesses the efficiency of the proposed model to interpret school district organizational effectiveness. Each of the hypotheses proposed in Chapter IV will be discussed separately. After reporting the direct effects of the exogenous and the intervening variables, an analysis will be made of the mediation effects of the intervening variables. The final section of this chapter will be an attempt to interpret some of the results associated with this model.

Data Analysis

The first step in analyzing these data is to consider the correlation between the variables at different stages of the model. In a graphic representation of the model, it was posited that the six environmental variables (school district size, fiscal resources, disadvantaged children, parental education, rural population and nonwhite population) occur independently of each other at the same point in time. Eleven of the fifteen possible zero-order correlations among the environmental variables proved to be statistically significant (see Table 1). The size of the school district was significantly correlated with all of the other exogenous variables. In particular, the correlations between school district size and the rural population ($r_{\text{SIZE,RURAL}} = -.699$, $p < .001$), the disadvantaged children ($r_{\text{SIZE,DISAD}} = -.596$, $p < .001$),

TABLE 1

ZERO-ORDER CORRELATIONS, MEANS AND STANDARD DEVIATIONS OF VARIABLES
IN A MODEL OF SCHOOL DISTRICT ORGANIZATIONAL EFFECTIVENESS (N = 66)

Variables ^a	A	B	C	D	E	F	G	H	I	J	K
A	--										
B	-.309*	--									
C	-.596***	.212	--								
D	.538***	-.210	-.624***	--							
E	-.699***	.208	.431***	-.632***	--						
F	-.363**	.242*	.728***	-.377**	.138	--					
G	.450***	-.537***	.527***	.477***	-.216	-.533***	--				
H	-.683***	.408***	.670***	-.460***	.547***	.397***	-.385**	--			
I	-.453***	.352**	.333**	-.309*	.405***	.242	-.322**	.486***	--		
J	.016	.248*	-.032	.241	-.168	.094	-.077	-.026	-.063	--	
K	.276*	.039	-.272*	.174	-.257*	-.186	.097	-.162	-.154	.274*	--
Mean	3.861	1256.8	36.70	29.41	58.64	32.40	18.90	8.13	7.65	34.27	64.19
Std. Dev.	0.384	161.9	13.01	7.86	27.65	14.27	1.35	2.47	2.09	8.22	7.38

^aThe variables are: A = school district size; B = fiscal resources; C = disadvantaged children; D = parental education level; E = rural population; F = nonwhite population; G = pupil-teacher ratio; H = administrative intensity; I = professional support component; J = qualifications of certified staff; and K = school district retention rate. *** $p \leq .001$; ** $.001 < p \leq .01$; * $.01 < p \leq .05$

and the parental education level ($r_{\text{SIZE,EDUC}} = .538, p < .001$) were quite high. This indicates that rural students and disadvantaged children are not as likely to be found in large school districts. However, the larger the district, the more likely that parents will have higher education levels.

The fiscal resources of the school have statistically significant correlations only with school district size ($r_{\text{RESOURCES,SIZE}} = -.309, p < .05$) and nonwhite population ($r_{\text{RESOURCES,PNONW}} = .242, p < .05$). These correlations were indications that fiscal resources decreased as school district size increased, but the resources and nonwhite population varied together.

Disadvantaged children in the school district were significantly correlated with all other exogenous variables, except the fiscal resources of the district. The highest correlations were found between disadvantaged children and nonwhite population ($r_{\text{DISAD,PNONW}} = .728, p < .001$), and parental education level ($r_{\text{DISAD,EDUC}} = -.624, p < .001$). The correlations proved to be as expected. It seems that the disadvantaged children are very likely to be members of the nonwhite population also. However, parents with increased education levels are very unlikely to have disadvantaged (below poverty level) children.

The parental education level was also significantly correlated with all of the exogenous variables except the fiscal resources of the district. The largest correlation was that between parents'

education and rural population ($r_{\text{EDUC,RURAL}} = -.632, p < .001$). These results indicate that parents with increased levels of education are less likely to live in rural areas.

The variables concerning rural population and nonwhite population were not significantly correlated with each other. In addition, their significant correlations with the other environmental variables tended to be rather small in absolute magnitude except where already reported. Generally, there was a great deal of inter-correlation among these six environmental variables with the exception of the fiscal resources of the school district.

The next step is to report the correlations that exist among the four intervening variables (pupil-teacher ratio, administrative intensity, professional support component, and staff qualifications). Pupil-teacher ratio, administrative intensity and professional support component were all significantly correlated with each other. The highest correlation was found between administrative intensity and professional support staff ($r_{\text{ADMIN,PROF}} = .486, p < .001$). Generally, as pupil-teacher ratio increased, ADMIN and PROF decreased. Administrative intensity and professional support component tended to vary together. The staff qualification variable was not significantly correlated with any of the other intervening variables.

The remainder of the discussion on data analysis focuses on the theoretical propositions and empirical hypotheses that were tested via the model.

The Effect of Environmental Conditions on School District Structural Conditions

Proposition One stated that the school district environmental conditions would be related to and affect the school district structural variables. The correlation coefficients presented in Table 1 indicated a high degree of correlation between the environmental variables and the structural variables. Sixteen of the eighteen possible correlations proved to be significant. School district size, fiscal resources, disadvantaged children, and parental education levels were significantly correlated with all three district structural conditions. The rural population was significantly correlated with all but the pupil-teacher ratio, and the nonwhite population, with all but the professional support component. In every case concerning the six environmental variables, the direction (positive or negative) of the correlation was one way for the pupil-teacher ratio and the opposite way when the administrative intensity and professional support component were considered.

This discussion will continue by reporting the regression analysis as presented in Table 2. This analysis indicates that approximately 56% of the variance in pupil-teacher ratios was accounted for by the six environmental variables. The following hypotheses were constructed to account for the variance in pupil-teacher ratios.

Hypothesis 1A: The size of the school district and the pupil-teacher ratio will be directly related. (+)

TABLE 2

STANDARD REGRESSION COEFFICIENTS, COEFFICIENTS OF DETERMINATION AND RESIDUALS
FOR A MODEL OF SCHOOL DISTRICT ORGANIZATIONAL EFFECTIVENESS (N=66)

Independent Variables ^a	Dependent Variables ^a				
	G	H	I	J	K
A	.250	-.285*	-.206	-.100	.212
B	-.387***	.231**	.228	.277*	.017
C	-.057	.593***	.053	.023	-.296
D	.334*	.156	.034	.347	-.240
E	.305*	.164	.204	-.102	-.181
F	-.223	-.157	.060	.119	-.077
G					-.019
H					.213
I					-.039
J					.293*
R ²	.562	.642	.277	.178	.209
Residual	.662	.599	.850	.906	.943

^aThe variables are: A = school district size; B = fiscal resources; C = disadvantaged children; D = parental education level; E = rural population; F = nonwhite population; G = pupil-teacher ratio; H = administrative intensity; I = professional support component; J = qualifications of the staff; and K = school district retention rate. *** $p \leq .001$; ** $.001 < p \leq .01$; * $.01 < p \leq .05$

A coefficient of .250 was found for this path. This was not a significant relationship, but it was in the predicted direction.

Hypothesis 1D: The fiscal resources of the school district and the pupil-teacher ratio will be inversely related. (-)

A highly significant relationship ($p_{GB} = -.387$) existed between these two variables. Fiscal resources proved to have the strongest effect on pupil-teacher ratios. These data tended to support the relationship suggested by Hypothesis 1D.

Hypothesis 1I: The parental education level and the pupil-teacher ratio will be inversely related. (-)

The results concerning this hypothesis were quite surprising. It has been postulated that as parental education level increased, the parents would want a higher quality education for their children. Lower pupil-teacher ratios would indicate a "better" education setting. But the data indicated that exactly the opposite occurred. A significant positive relationship was found between the variables of EDUC and PTRATIO with a coefficient of .334 for this path.

Hypothesis 1K: The percent rural population and the pupil-teacher ratio will be directly related. (+)

This hypothesis was supported. A significant relationship was found to exist between these two variables. A coefficient of .305 was calculated for this path, indicating a fairly strong relationship.

Hypothesis 1N: The percent nonwhite population and the pupil-teacher ratio will be inversely related. (-)

A significant relationship was not found for this hypothesis, but the results were in the predicted direction. A path coefficient of $-.223$ was obtained.

More variance was accounted for in the administrative intensity variable than in any other intervening variable. Together, the six exogenous variables accounted for 64% of the variance in AD'IN.

Hypothesis 1B: The size of the school district and the administrative intensity of the district will be inversely related. (-)

There was support for this hypothesis. A significant relationship was found to exist between the school district size and administrative intensity ($p_{HB} = -.285$).

Hypothesis 1E: The fiscal resources of the school district and the administrative intensity of the district will be directly related. (+)

A coefficient of $.231$ was computed for this path. This proved to be a highly significant ($.01$ level) relationship, thereby indicating support for Hypothesis 1E.

Hypothesis 1G: The proportion of children from disadvantaged families and the administrative intensity of the district will be directly related. (+)

Children from disadvantaged families seemed to be the strongest determinant of administrative intensity. A highly significant relationship ($.001$ level) was found between these two variables. Support for this hypothesis was indicated with a path coefficient of $.593$.

Hypothesis 1L: The percent rural population and the administrative intensity of the school district will be directly related. (+)

A coefficient of .164 was computed for this path. This relationship proved to be non-significant, however the association was in the predicted direction.

The final district structural variable is the professional support component. The exogenous variables accounted for 28% of the variance in PROF. However, there were no significant paths found to exist leading to the PROF variable. The hypotheses concerning this variable follow.

Hypothesis 1C: The size of the school districts and the professional support component will be directly related. (+)

Hypothesis 1F: The fiscal resources of the school district and the professional support component will be directly related. (+)

Hypothesis 1H: The proportion of children from disadvantaged families and the professional support component will be directly related. (+)

Hypothesis 1J: The parental education level and the professional support component will be directly related. (+)

Hypothesis 1M: The percent rural population and the professional support variable will be directly related. (+)

Hypothesis 1P: The percent nonwhite population and the professional support component will be directly related. (+)

Hypothesis 1C was not supported at all. The actual relationship was in the opposite direction of that hypothesized. A direct relationship was predicted, but a path coefficient of $-.206$ was obtained. Hypotheses 1F and 1M were non-significant, but in each case the results were in the predicted direction. The path coefficients associated with Hypotheses 1H ($p_{1C} = .053$),

1J ($p_{ID} = .034$), and 1P ($p_{IF} = .060$) were so low that it best can be assumed that the variables of DISAD, EDUC, and PNONW have no effect on PROF.

Of the 15 relationships that were hypothesized in Proposition One, only five were supported by the results of this study. The PTRATIO was significantly affected by RESOURCES, EDUC, and RURAL. In addition, SIZE and PNONW were also close to significance ($p < .10$). The exogenous variables that significantly affected ADMIN were SIZE, RESOURCES, and DISAD. There were no significant paths between the exogenous variables and PROF. PTRATIO and ADMIN seem to be "explained" fairly well by the environmental variables, but PROF was not. Consequently, the results from this analysis indicate that, generally, Proposition One is not supported very well by the data.

The Effect of Environmental Conditions on Staff Composition

Proposition Two stated that the school district environmental conditions will be related to and affect the school district staff composition. Analysis of the zero-order correlations in Table 1 indicates that there was only one significant correlation between the environmental variables and the qualifications of the staff. There was a significant zero-order correlation between RESOURCES and QUALIF ($r_{RESOURCES, QUALIF} = .248, p < .05$). Many of the other correlations were quite small. In fact three of the six possible correlations had an absolute value less than 0.100. It seems that the environmental variables had very little

effect on the qualifications of the staff. Six empirical hypotheses were constructed to test this proposition. The hypotheses and the results found in the regression analysis follow.

Hypothesis 2A: The size of the school district and the qualifications of the staff will be directly related. (+)

A non-significant relationship was found to exist between these two variables ($p_{JA} = -.100$). In addition, the relationship was not in the predicted direction. The results indicate that the larger the school district, the fewer teachers there will be with advanced degrees.

Hypothesis 2B: The fiscal resources of the school district and the qualifications of the staff will be directly related. (+)

The data supported this hypothesis. A significant relationship was found to exist between RESOURCES and QUALIF. A coefficient (p_{JB}) of .277 was calculated for this path. As the amount of fiscal resources increases, apparently the number of teachers with advanced degrees should increase also.

Hypothesis 2C: The proportion of children from disadvantaged families and the qualifications of the staff will be inversely related. (-)

The coefficient calculated for this path was so low that it can be assumed that DISAD had no effect on QUALIF ($p_{JC} = .023$). The number of teachers with advanced degrees in a school district will not be affected by the number of disadvantaged children.

Hypothesis 2D: The parental education level and the qualifications of the staff will be directly related. (+)

This relationship proved to be non-significant, although it did border on statistical significance ($p_{JD} = .347, p < .06$) and the result was in the predicted direction. Where parents have more education it seems that there are likely to be more teachers with advanced degrees.

Hypothesis 2E: The percent rural population and the qualifications of the staff will be inversely related. (-)

Hypothesis 2F: The percent nonwhite population and the qualifications of the staff will be inversely related. (-)

Neither of these hypotheses were supported by this data. Very low coefficients ($p_{JE} = -.102; p_{JF} = .119$) were calculated for each path and the results were non-significant. The RURAL variable did affect QUALIF in the predicted direction (Hypothesis 2E), however PNONW had an effect opposite to that predicted (Hypothesis 2F). It seems that the number of teachers with advanced degrees will increase in school districts with a larger nonwhite population.

Together, the six environmental variables only accounted for 18% of the variance in the staff composition variable. Only one of the six hypothesized relationships were supported by the results of this study. Fiscal resources was the only variable to significantly affect QUALIF. Since the explained variance was so low, and there were so few supported hypotheses, Proposition Two was not supported.

The Effect of Environmental Conditions, Structural Variables
and Staff Composition on Retention Rates

Proposition Three was concerned with the effect of all of the exogenous and intervening variables on the dependent variable, retention rates. The first step in this analysis was to study the direct effects of the variables in the first two stages of the model on the dependent variable. The zero-order correlations presented in Table 1 indicate that most of the predetermined variables are not correlated very highly with retention rates. Only four of the ten possible correlations are significant (all at the .05 level). The most highly correlated environmental variables are SIZE ($r_{\text{SIZE,RET}} = .276$), DISAD ($r_{\text{DISAD,RET}} = -.272$) and RURAL ($r_{\text{RURAL,RET}} = -.257$). The only intervening variable correlated with school district retention rates is the qualifications of the staff ($r_{\text{QUALIF,RET}} = .274$). At least two of the zero-order correlations are very small (an absolute value below 0.100). Fiscal resources ($r_{\text{RESOURCES,RET}} = .039$) and the pupil-teacher ratio ($r_{\text{PTRATIO,RET}} = .097$) seem to have little, if any, association with the retention rates of school districts. Ten empirical hypotheses were constructed to test the effects of these predetermined variables on the retention rates. The results of the regression analysis (see Table 2) used to test these hypotheses follows.

Hypothesis 3A: The size of the school district and the retention rate for the district will be inversely related. (-)

The literature had suggested that large size would harm students. However, these data indicate that large size is related with higher retention rates. The coefficient calculated for this path was rather large, but not significant ($p_{KA} = .212$). The evidence does not support this hypothesis.

Hypothesis 3B: The fiscal resources of the school district and the retention rate for the district will be directly related. (+)

About the only thing that can be said about RESOURCES is that it has no direct effect on retention rates in Louisiana public schools. The coefficient calculated for this path (p_{KB}) was .017. The hypothesized relationship was not supported.

Hypothesis 3C: The proportion of children from disadvantaged families and the retention rate for the district will be inversely related. (-)

The influence of DISAD on RET was rather large and also in the predicted direction ($p_{KC} = -.296$), however it was not significant. Generally, a greater number of disadvantaged children indicated a school district with lower retention rates.

Hypothesis 3D: The parental education level and the retention rate for the district will be directly related. (+)

The relationship suggested by a review of the literature was that areas where parents had high education levels would have high retention rates. Better educated parents would see (or insist) that their children were also educated. Surprisingly, the data for Louisiana public school districts indicated a relationship in the opposite direction. Consequently, no support for this

hypothesis was found as a path coefficient (p_{KD}) of $-.240$ was calculated indicating that districts with higher levels of parental education had lower retention rates.

Hypothesis 3E: The percent rural population and the retention rate for the district will be inversely related. (-)

The coefficient computed for this path was in the predicted direction, but it was non-significant ($p_{KE} = -.181$). Generally, it might be assumed that an increasing rural population will be associated with a decreasing retention rate, but no real support for this hypothesis was found in this data.

Hypothesis 3F: The percent nonwhite population and the retention rate for the district will be inversely related. (-)

Basically, the nonwhite population had no direct effect on the school district retention rate. The path coefficient calculated was in the predicted direction, but it was very small ($p_{KF} = -.077$). Thus, this hypothesis was not supported.

Hypothesis 3G: The pupil-teacher ratio and the retention rate for the district will be inversely related. (-)

The coefficient for the path from PTRATIO to RET was one of the smallest ones calculated ($p_{KG} = .019$). While this coefficient was in the predicted direction, it was so small that it seems safe to say that it was of no effect.

Hypothesis 3H: The administrative intensity and the retention rate of the district will be directly related. (+)

A rather large, but non-significant coefficient was calculated for this path ($p_{KH} = .213$). The coefficient was in the predicted direction, but it wasn't strong enough to lend any real support to the hypothesis.

Hypothesis 3I: The professional support component and the retention rate of the district will be directly related. (+)

This relationship proved to be quite interesting. There was a great deal of literature that suggested that the "best" way to increase retention rates (or to reduce dropout rates) was to increase the professional support component (especially guidance counselors and teaching specialists). However, for the Louisiana public school districts a coefficient of $-.039$ was calculated for this path. Although this coefficient was in the "wrong" direction, its magnitude suggests that it is of virtually no direct effect.

Hypothesis 3J: The qualifications of the staff and the retention rate of the district will be directly related. (+)

This was the only significant path coefficient calculated for the paths leading to RET with a coefficient of $.293$. These data tended to support Hypothesis 3J that school districts with more teachers with advanced degrees will have higher retention rates.

The exogenous and intervening variables together accounted for approximately 21% of the variance in school district retention rates. Only one of these variables (QUALIF) had a significant direct effect on RET. These findings generally indicate that

Proposition Three was not supported by these data. However, before making a final decision, it is necessary to consider not only the direct effects, but also the indirect effects of the exogenous variables as these are mediated by the intervening variables in this model.

Mediation of Environmental Conditions by Structural Variables and Staff Composition

The use of structural models in sociological research has added a new dimension to the search for causal effects. Some researchers (see, for example, Duncan, 1975; and Land, 1969) have suggested that both direct and indirect effects must be calculated for these models to accurately interpret them. In addition, it has been emphasized that often indirect effects result from some variables (intervening variables) mediating the effects of other variables (independent variables). Consequently, it seemed quite logical to expect that the effects of the environmental conditions (on the retention rate) in this model would be mediated by the district structural conditions and the staff composition.

The next step in this analysis then, was the decomposition of the effects found for this model. Following the methods outlined by Alwin and Hauser (1975) for the decomposition of a model, it is possible to present direct, indirect and total effects for the independent variables in this model. For this discussion, it will be assumed that important mediation effects have occurred when indirect effects are the majority of the total effect for an independent variable.

The mediation effects for the variables in this model are illustrated in Table 3. Of the six times when mediation could have occurred, only one case of mediation effects was evident. RESOURCES was the only variable that had its effect mediated by the intervening variables with the mediated indirect effect accounting for 89.6% of its total effect. Approximately half of the total effects of RESOURCES are mediated by QUALIF. In other words, RESOURCES itself has a very small direct effect on RET, but its indirect effect (on RET), as it is mediated by QUALIF, is quite large.

The mediation effects of the nonwhite population were considerable. Mediated indirect effects accounted for 49% of the total effects of PNONW. The largest portions of this indirect effect were mediated through ADMIN and QUALIF.

The remaining independent variables had rather small indirect effects. The amount of their total variance mediated by the intervening variables ranged from 30.4% (for RURAL) to 37.2% (for EDUC). It probably should be pointed out that those variables with the largest mediated effects (RESOURCES and PNONW) were the variables with the smallest total effects. Consequently, other independent variables may have had larger indirect effect values, but smaller indirect effect proportions. So, it was considered that these variables did not have a great deal of mediated effects.

A review of the mediated effects in Table 3 shows that PTRATIO never really mediated the effects of the independent

TABLE 3

INTERPRETATIONS OF EFFECTS IN A MODEL OF SCHOOL DISTRICT
ORGANIZATIONAL EFFECTIVENESS (N=66)

Predetermined Variables ^a	Total Effects	Indirect Effects Via ^a				Direct Effect	% Due to Direct	% Due to Indirect
		G	H	I	J			
A	.315	(-) ^b .005	(-) ^b .061	.008	(-) ^b .029	.212	67.3%	32.7%
B	.163	.007	.049	(-) ^b .009	.081	.017	10.4%	89.6%
C	.432	.001	.126	(-) ^b .002	.007	(-) .296	68.5%	31.5%
D	.382	(-) ^b .006	.033	(-) ^b .001	.102	(-) .240	62.8%	37.2%
E	.260	(-) ^b .006	.035	(-) ^b .008	(-) ^b .030	(-) .181	69.6%	30.4%
F	.151	.004	(-) ^b .033	(-) ^b .002	.035	(-) .077	51.0%	49.0%

^aThe variables are: A = school district size; B = fiscal resources; C = disadvantaged children; D = parental education level; E = rural population; F = nonwhite population; G = pupil-teacher ratio; H = administrative intensity; I = professional support component; and J = qualifications of the staff.

^bAbsolute values were used to compute direct and indirect effects, since the magnitude of influence, regardless of its direction, was of primary importance in this analysis.

variables. The largest indirect effect mediated by PTRATIO was .007 (absolute value) for RESOURCES which is essentially no effect at all. Administrative intensity served best as a mediator of the effects of DISAD (.126) and SIZE (-.061). The professional support component was another intervening variable which did not have any real mediating effect for the independent variables. The largest indirect effect mediated by PROF was .009 (absolute value) for RESOURCES. At times, qualifications of the staff seemed to be quite important as a mediator of independent variable indirect effects. QUALIF was best a mediator of the effects of EDUC (.102) and RESOURCES (.081).

The rank order of the independent variables with the largest total effects were DISAD (1st), EDUC (2nd), and SIZE (3rd). These same independent variables also had the largest rank ordering for direct effects (DISAD = 1st; EDUC = 2nd; and SIZE = 3rd). It seems that, generally, this model only slightly experienced the mediation of effects for independent variables by the intervening variables.

Proposition Three stated that school district environmental conditions, school district structural variables and school district staff composition would affect school district retention rates with the effect of the environmental conditions on retention rates being mediated by the intervening variables. Of the ten direct relationships hypothesized for this model, only one proved to be significant (the relationship between QUALIF and RET). There were six instances when mediation effects were possible, but only

once did they occur (the effects of RESOURCES were mediated by the intervening variables). Consequently, since so few hypotheses were supported, and so little mediation of effects occurred, it seems that generally Proposition Three was not supported by these data.

Interpretation of Data

The first section of this chapter was devoted to a presentation of the empirical findings of a model of organizational effectiveness for Louisiana public school districts. These findings have not yet been interpreted in terms of their theoretical significance. That is the purpose of the final section of this chapter.

Selected literature reviewed in Chapter 2 contained examples portraying schools as unique forms of formal organizations. Because of this designation, it becomes quite logical to use organizational research methods to study the school. This was the aim of Bidwell and Kasarda (1975). As in evaluation research, they wanted to test the effectiveness of the school district organization. To realize the effectiveness of the district, they first had to ascertain the goals of the school district. Bidwell and Kasarda realized the multitude of possible goals for the district, but they settled for a goal of student achievement. Instead of using individual characteristics to account for this goal, Bidwell and Kasarda used measures of the organizational attributes of the school districts. The result was a three-stage, ten-variable model that accounted for approximately 25% of the variance in district student achievement scores. Practically every relationship hypothesized proved to be significant.

In the model tested in this thesis only a small amount of the variance was accounted for (21%) and none of the propositions were completely supported; consequently, the task of interpreting these data was quite difficult. Proposition One was concerned with the effect of the environmental variables on the district structural variables. It had been hypothesized that PTRATIO would be positively affected by SIZE and RURAL, and inversely affected by RESOURCES, EDUC, and PNONW. Only two of these hypothesized relationships were supported.

The strongest relationship was found between RESOURCES and PTRATIO. It had been hypothesized that there would be an inverse relationship between these two variables. It would seem logical to assume that districts with more money could afford to increase the number of teachers. By increasing the number of teachers (with slow student growth) the pupil-teacher ratios would be lower in the classrooms. This obviously was the case in the Louisiana public school districts. Those districts that had more money must have been able to hire more teachers, thereby lowering the pupil-teacher ratios.

The other variable to significantly affect PTRATIO was RURAL. The assumption was made that rural areas would have a hard time retaining teachers. In addition, these areas would probably have less fiscal resources with which to attract or to add new teachers. Consequently, getting teachers in rural areas might be difficult and the number of pupils for each teacher would be high. This seemed to be true for Louisiana public school districts,

as the parishes with larger proportions of their population classified as rural residents seemed to have higher pupil-teacher ratios.

The assumption had been made that as school district size increased, the pupil-teacher ratio would increase also. A greater number of students would be rationed out to a fixed number of teachers. The results should be higher PTRATIO's. Basically this type of effect was found. The indications were that the pupil-teacher ratios were higher in the larger school districts. However, even though this effect was large, it was not a significant relationship. This suggests that sometimes large school districts may have lower PTRATIO's and there is not as much variation between large and small districts as might have been expected (the range was from 15.3 to 21.5). This would probably be due to other characteristics that are associated with large districts such as an urban life-style, and increased resources.

Another relationship that did not prove to be significant was concerned with an inverse relationship between PNONW and PTRATIO. It is difficult to assess whether the nonwhite population would affect the PTRATIO, or whether this variable masks some other effect. Just the presence of nonwhites should not cause an increase or decrease in the PTRATIO, but the fact that nonwhites are more likely to be in urban areas with more resources for the school district might indicate an association with lower PTRATIO's. Such must have been the case as these data suggest that those districts with higher proportions of nonwhites in their population

tended to have lower pupil-teacher ratios. The fact that this relationship was not significant would indicate the possibility that PNONW was not necessarily a "cause" of PTRATIO's, but rather an indicator of other things that affected the PTRATIO.

The most surprising variable affecting the pupil-teacher ratio was the parental education level. It had been predicted that districts with higher education levels for parents would be likely to have lower pupil-teacher ratios. This is because more highly-educated adults would be more likely to want to reside in areas where their children could get a "quality" education. This "quality" education could be defined as classrooms with lower pupil-teacher ratios where the student would be likely to get more individual attention from the teacher. However, the data for Louisiana public school districts indicated a direct relationship between these two variables. In other words, districts with higher parental education levels also had higher PTRATIO's. It is very difficult to imagine that more highly-educated parents would want their children to be in districts with higher PTRATIO's. Consequently, it is very difficult to interpret this result.

The next set of hypotheses was concerned with the effects of the environmental variables on the administrative intensity of the school district. Of the four relationships that were hypothesized, all effects were in the predicted directions with three of the hypotheses being significant. SIZE was posited as having a negative effect on ADMIN, while RESOURCES, DISAD, and RURAL would have a positive effect.

It was assumed that increasing school district size would not necessarily require more administrators. More teachers might be necessary, but basically the same number of administrators could suffice in a school. The result would be that the ratio of administrators to classroom teachers should decrease. This seemed to be the case with the Louisiana public school districts. A negative relationship was found between these two variables indicating that as the school district size increased, the administrative intensity of the district tended to decrease.

The relationship concerning RESOURCES and ADMIN seemed quite logical. A school district with more money to spend would be more likely to have more special programs and more needs for extra administrators. It may not be necessary to increase the number of administrators just because the school size increases, but if there is more money available, it is likely that more administrators would be hired. Data for Louisiana supported this assumption. Those districts with more fiscal resources tended to have a larger administrative intensity.

The incidence of disadvantaged children often is associated with special programs to care for their needs. If this is the case, then possibly more administrators may be required to supervise these extra activities. The most surprising thing about this relationship for the Louisiana data was its large size ($p_{HC} = .593$). This was by far the largest effect found for any

relationship in the entire model. It is difficult to determine why the proportion of disadvantaged children should have such a strong effect on the administrative intensity of Louisiana public school districts.

The final hypothesis concerning ADMIN predicted a positive effect by the RURAL variable. Just as it was assumed that the number of administrators would remain constant regardless of SIZE, so too, this number should remain constant regardless of rural background. The only difference is that as the rural population increases, the number of required teachers would decrease. This should cause ADMIN to increase for rural districts. These data did not support this relationship. Generally, though, school districts with larger proportions of rural residents in the population also tended to have a larger ratio of administrators to classroom teachers.

All six of the environmental variables were hypothesized to have a direct effect on the professional support component of the school districts. None of these hypotheses were supported by the data, consequently interpretations are difficult. It had been assumed that larger districts (SIZE) and those with more money (RESOURCES) would need and/or could afford more professional staff. Also in areas where the parents were highly educated (EDUC), there would be greater pressure for more counselors, etc. to adequately guide their children. Since nonwhite (PNONW) and disadvantaged students (DISAD) have tended at times to be poorer

students, it was assumed that they would need more extra help in the form of specialists and remedial instruction. Again, it was assumed that to some extent, a certain number of professionals should always be necessary; even in rural areas (RURAL) with fewer teachers. Consequently, this ratio of professionals to teachers should be higher. Nothing can really be said about this variable, however. Three of the coefficients were so small (DISAD, EDUC, and PNONW), that it can be assumed they had no effect on PROF whatsoever. The only variable anywhere close to significance was RESOURCES ($p < .10$). Generally, school districts with more fiscal resources tended to have larger ratios of professionals to classroom teachers.

In two of the three cases, this model did quite well in explaining the district structural variables. The six environmental variables accounted for 56% of the variance in PTRATIO and 64% of the variance in ADMIN. Both of these were quite high for sociological data. Also there were three (of six) significant effects for each of these two structural variables. However, only five (of the six total) of these relationships were as hypothesized. One relationship (EDUC $\rightarrow$ PTRATIO) was completely the opposite of what was hypothesized. In addition, it was significant in the opposite direction. However, when PROF is considered, this model seemed to do less well. Only 28% of the variance was accounted for and none of the environmental variables had a significant effect on it.

Generally, it must be concluded that Proposition One, at best, is only partially supported. The results of these data suggest that the environmental conditions of the school district behave in very different ways depending on the district structural variable being explained. These results might be different if PROF were deleted from the analysis. The problem, however, is in determining why ADMIN and PROF react so differently. These variables seem to measure the same type of characteristics, but they obviously do not occur in the same way. However, since PROF is included in the analysis, it seems that the environmental variables are not enough to adequately explain the district structural variables.

Proposition Two is concerned with the effect of the environmental conditions on the staff composition variable. It was hypothesized that SIZE, RESOURCES, and EDUC would have a positive effect on QUALIF, while DISAD, RURAL, and PNONW would have an inverse effect. Only one of these hypotheses was supported by the data.

Bidwell and Kasarda (1975) indicated that SIZE would be an indicator of community size. Larger communities should have a larger collection of well-qualified teachers. Consequently, the QUALIF variable should be higher for the larger school districts. Such was not the case in Louisiana. As school district size increased, QUALIF tended to decrease. This effect was very small, though. The problem that exists is in determining what it is

about large school districts that results in a lower ratio of teachers with advanced degrees. This may be a function of a larger labor market in urban areas; thus, as size increases it may be necessary to continually add new teachers who do not have advanced degrees. It is most common for a teacher to get his/her first teaching job without an advanced degree. If a school district hired a number of these teachers, this could conceivably cause the QUALIF ratio to decrease.

The assumption was made that as school districts had increasing financial resources, they would be able to afford and to attract better-qualified (i.e., more educated) teachers. This relationship was supported by the data. As the fiscal resources of a district increased, apparently the ratio of teachers with advanced degrees to those teachers without advanced degrees increased also. Money is used to attract better-qualified teachers. This is possible because districts with more money should be able to pay higher salaries. Also, districts with more resources may have more special or "extra" programs that require teachers with advanced degrees.

The logic was used that more highly-educated parents would want the best possible education for their children, hence they would want more highly-educated teachers for their children. Consequently, higher educated parents were assumed to live in districts where the QUALIF ratio would be higher. A very large effect, which bordered on significance ($p < .06$) was found for the Louisiana data. It seems that the Louisiana school districts

with higher levels of parental education also had higher ratios of teachers with advanced degrees to teachers without advanced degrees.

The hypothesized relationship concerning DISAD, was that districts with larger proportions of disadvantaged children would be the districts with lower staff composition rates. The idea was that the poorer districts (as measured by the disadvantaged population of that district) would not attract the better-educated teachers. With the Louisiana data there was virtually no effect at all between DISAD and QUALIF. It seems that the proportion of disadvantaged children in a district would have no effect on the qualifications of the teachers in that district.

It was hypothesized that the rural population and the nonwhite population would be inversely related to the qualifications of the staff. Rural areas would be hard-pressed to attract more highly-educated teachers to their school districts. Possibly, districts with more nonwhites would also have difficulty in attracting better-educated teachers (especially if the teachers were white). Neither of these relationships were supported by the data. A low negative effect was found between RURAL and QUALIF. This suggests that those school districts with large rural populations may have fewer teachers with advanced degrees. The PNONW, however, had a low, positive effect on the qualifications of the staff. It seems that districts with larger nonwhite populations tended to have more teachers with advanced degrees.

Possibly this is due to more nonwhites living in urban areas where the better-educated teachers would tend to work.

It seems very obvious that in this model the environmental conditions did a poor job of explaining the qualifications of the staff. Only 18% of the variance was accounted for and only one of the environmental variables (RESOURCES) significantly affected QUALIF. Consequently, Proposition Two was not supported by these data.

Proposition Three was concerned with the effects of all of the exogenous and the intervening variables on the school district retention rate. Theoretical interpretations are difficult because only 21% of the variance was accounted for and only one (of ten) hypotheses was significant.

Of the environmental variables, SIZE, DISAD, RURAL, and PNONW were hypothesized to be inversely related to school district retention rates. It has been suggested that as the size of a school increases, some students become alienated from the system. If these students need help, but don't get it, they may be less likely to graduate. For these data, however, a positive relationship was found. It seems that as school district size got larger, the retention rate increased. Possibly this is a result of the fact that the better-educated teachers are more likely to be in large areas, and these teachers seem to help keep students in school.

DISAD and PNONW could be considered measures of the lower status population. As such, these groups seem to be less likely to finish school. Both measures were in the predicted direction.

DISAD seemed to have a very strong effect on RET ($p_{KC} = -.296$). The effect of PNONW was fairly weak ($p_{KF} = -.077$). Consequently, school districts with greater proportions of disadvantaged children were likely to have lower retention rates. It seems that poorer families (as measured by children below poverty level) tend to perpetrate their status by failing to get an adequate education. The same basic idea is true for the nonwhite population, but in this case, the relationship is not as evident.

At times, it has been suggested that the rural population doesn't value education as much as others do. Also, they are more likely to start working full-time at an earlier age. If this is so, rural students may often be less likely to stay in school. The Louisiana data offer some support for these assumptions. While the effect was not significant, it was in the predicted direction. It seems then, that school districts with larger rural populations tend to have lower retention rates.

The environmental conditions of RESOURCES and EDUC were hypothesized to have a direct effect on RET. The fiscal resources of the district seemed to have no effect on the retention rate ($p_{KB} = .017$). Nothing can really be said about this relationship. Concerning EDUC, it had been very logical to assume that more highly-educated parents would encourage their children to get an education also, hence districts with high levels of parental education would also have high retention rates. Such was not the case in Louisiana. A rather large effect was found ($p_{KD} = -.240$) which suggested that as the parental education level of a district

increased, the retention rate of the district decreased. It seems impossible to fathom that as more parents get a high school education, their children get less education. A possible explanation concerns the existence of nonpublic schools. It is entirely possible that in the school districts with high parental education levels, these better-educated parents may be more likely to send their children to nonpublic schools. The result is that these parents are included in the EDUC variable, but their children are not included in the RET variable.

The result is that none of the environmental conditions seemed to effect the retention rate. The intervening variable of PTRATIO was hypothesized to have an inverse relationship with RET. Students in schools with lower PTRATIO's would be likely to get more special attention. This added attention and closer atmosphere should lead to higher retention rates. The Louisiana data failed to show this relationship. The coefficient was in the predicted direction, but it was so small that no effect can really be suggested for PTRATIO.

The intervening variables of ADMIN, PROF, and QUALIF were hypothesized to be directly related to RET. It was assumed that more administrators and professional staff would be available to help the potential dropouts. For example, more counselors and teaching specialists may give the personal attention to a potential dropout that he needs. More administrators may be associated with special programs aimed at keeping these students

in school. The Louisiana data did not support these relationships. The effect of ADMIN on RET is quite large, but it is not significant. Generally, though, it seems that as the administrative intensity of the school district increases, the retention rate increases also. The relationship between PROF and RET was almost zero ($p_{JI} = -.039$), yet in the literature, increasing the professional staff was often suggested as the best way to reduce the dropout rate.

The assumption was made that teachers with more education would be better qualified to keep the dropout in school. Whatever the dynamics of this, it remains that this was the only variable that significantly affects the school district retention rates. Those districts with increasing levels of staff qualifications are likely to have higher retention rates.

Only the mediated effects remain to be discussed. One exogenous variable had a substantial amount of mediated effects--RESOURCES. This is not too surprising. It is very difficult to imagine how money, by itself, could raise the retention rate. Just having the resources is not going to cause more students to graduate from high school. The solution is in the ways the fiscal resources are spent. This is what the mediated effects show. The intervening variable of QUALIF, best mediates the effects of RESOURCES on RET. Fiscal resources can't raise retention rates, but the resources can increase the number of better-educated teachers and these teachers can then help raise the retention rate.

After careful consideration, it was decided that Proposition Three was not supported by these data. All of the other variables in the model were only able to account for 21% of the variance in RET. In addition, only one of these variables significantly affected RET and only one exogenous variable had substantial mediated effects on RET. Consequently, it seems that the environmental conditions, structural variables, and staff composition offer only a partial explanation of the school district retention rate.

Finally, it is necessary to consider the main theme of this thesis--the organizational effectiveness of the school districts. Just as Bidwell and Kasarda stressed that their research was not a study to explain student achievement, neither is this a study of student retention. The main focus of this thesis is to ascertain the organizational effectiveness of the Louisiana public school districts. It has been determined that schools are unique forms of complex organizations. As such, they have certain goals that need to be met. However, ascertaining the goal of a school district is a difficult task. Bidwell and Kasarda used student achievement; student retention was used in this thesis. It can be argued that both of these are "goals" that the school districts want to meet.

The problem then is to what degree (if at all) these goals are influenced by organizational considerations. On the whole the organizational attributes in this model did not adequately explain the retention rate. It seems instead, that if the effectiveness

of school district organization can be measured by retention rates of the district, then the model tested in this thesis is lacking in some other unnamed organizational variables that must contribute to the explanation of student retention rates. If retention is a legitimate goal of a school district, and is in part determined by organizational factors, then it remains to more fully understand what importance organizational variables have in explaining how well this goal is being met.

CHAPTER VII

SUMMARY, IMPLICATIONS AND LIMITATIONS

Summary

The purpose of this study was to partially replicate the Bidwell-Kasarda study of school district organizational effectiveness and to create a new model of school district organizational effectiveness for Louisiana public schools. Also this study was to serve as a minimal guide to the evaluation of the school district as a complex organization.

An overview of the sociology of complex organizations was presented in Chapter II. These organizations were compared to Weber's (1958) "bureaucracies." Then the special characteristics, functions and structure of complex organizations were discussed in light of Bertrand's (1972) general systems theory. Topics included in complex organization research were discussed. These include communication, the leadership structure, the effects on the individual, power, and goal attainment. The schools as unique forms of complex organizations were the next topic. Many characteristics of a bureaucracy exist within the schools. There also have been numerous studies on the social processes and the social structure of the school. All of these suggest that the school is a complex organization.

Since school district retention rates were used as the dependent variable, it was necessary to review the literature on the environmental and organizational causes of dropping out. The

dropouts tended to come from broken or lower-status homes. Parents tended to have less education. The dropouts compared unfavorably with other students in natural ability for learning. It was suggested that the "culturally deprived" tended to drop out often. Also rural students were prone to dropping out. Students tended to drop out to get jobs, because of failing grades, because of pregnancy, and because of lack of finances. To slow the dropout rate it had been suggested that more counselors and teaching specialists were needed. Also special programs should be set up for the dropout with his needs in mind.

In Chapter III the literature specific to the model used in this study was reviewed. The Bidwell-Kasarda model contained ten variables and explained 25% of the variance in district student achievement rates. Hannan, et al., and Alexander and Griffin critiqued this model focusing mainly on a level of analysis criticism and the use of standardized coefficients when they biased the results.

For this study, a new conceptual model was developed to investigate school district organizational effectiveness. Six environmental conditions were included. These were school district size, fiscal resources, proportion of disadvantaged children, parental education level, rural population and nonwhite population. The intervening variables were characteristics of district structure (pupil-teacher ratio, administrative intensity and professional support component) and staff composition (qualifications of the

staff). These ten variables were related (in a causal diagram) to school district retention rates. Utilizing relevant literature and previous models, three propositions and 31 hypotheses were stated for testing.

The research design used in this thesis was secondary analysis of governmental data. Data were collected from the U. S. Census Bureau and the Louisiana Department of Education. The sample consisted of the 66 public school districts in Louisiana. The model was tested via path analysis to consider the predicted relationships.

Proposition One stated that environmental conditions would be related to and affect the district structural variables. Fiscal resources, parental education and the rural population significantly affected the pupil-teacher ratios. The administrative intensity was significantly affected by school district size, fiscal resources and percent disadvantaged children. None of the environmental conditions had a significant effect on the professional support component. Much of the variance was accounted for in the pupil-teacher ratio (56%) and the administrative intensity (64%), but the professional support variable had comparatively little explained variation (28%). This proposition received only moderate support.

Proposition Two stated that environmental conditions would be related to and effect staff composition. This proposition was not supported at all. Only one relationship was significant (RESOURCES → QUALIF) and only 18% of the variance in the professional support component was accounted for.

Proposition Three stated that environmental conditions, district structural variables and staff composition would be related to and affect the school district retention rate. Also, the effects of the exogenous variables would be mediated by the intervening variables. There was little or no support for this proposition. One significant effect was found and 21% of the variance was explained. Only the staff qualifications seemed to significantly affect the school district retention rates. In addition only one exogenous variable showed signs of large mediated effects with much of the effect of fiscal resources mediated by staff qualifications (49.7%).

Implications

At this point, it is necessary to consider the theoretical implications that have arisen from this thesis. There are four areas of consideration: 1) the new rural variable; 2) reordering the nonwhite population variable; 3) the new dependent variable of retention; and 4) the place of this thesis in the Bidwell-Kasarda controversy.

Initially, it was decided that another environmental condition should be utilized in the organizational effectiveness model. Many sociologists (Sorokin and Zimmerman, 1928; and Rogers and Burdge, 1972, for example) have indicated that the rural population has a unique lifestyle. Rural residents sometimes have different ideas concerning education and its value. Consequently, it seemed quite logical to consider this as an environmental condition of the school district. This condition would exist as part of the

environment of the students and would have much effect on their views (and actions) concerning high school graduation.

The results of the data seem to indicate that the utilization of a variable to measure the rural population (or its obverse, the urban population) is a necessary condition in school district organizational research. The RURAL variable only significantly affected one of the intervening variables, but in every case the effect was in the predicted direction. Also in every situation, the effect seemed large enough to assume that it wasn't entirely by chance that the results were in the predicted direction. The rural population did not significantly affect the school district retention rate but, again, it was a fairly large effect in the predicted direction.

A variable measuring the nonwhite population was included in the Bidwell-Kasarda model, but it was hypothesized to effect only the dependent variable. In this thesis, PNONW was placed with the other environmental variables just as Alexander and Griffin (1976a) suggested. Here, too, it was assumed that there would be a unique lifestyle and unique values that would affect school district organization. Since PNONW was included in the original Bidwell-Kasarda model with an effect on the dependent variable, the only concern here is its effect on the intervening variables because it was repositioned in the model.

The results for these data suggest that PNONW contributes very little added explanation due to its new position in the model. None of the intervening variables were significantly affected

by PNONW. Three of these effects were less than 0.160 (absolute values) with one as low as 0.060. It appears that the nonwhite population variable makes its best contribution when it only has a direct effect on the dependent variable.

The implications of using student retention as the dependent variable are quite important. To evaluate how effectively an organization is operating, it is necessary to determine the goal of that organization. Bidwell and Kasarda admit that the goals of school districts are many and vague. However, their use of student achievement as the dependent variable had substantial problems. Their critics continually indicated that student achievement was an individual phenomenon. To get a district measure of student achievement, Bidwell and Kasarda had to remove much of the individual variation. This could cause biased results.

Hopefully, the use of retention rates solves these problems. Retaining students in school is a goal of the school district as an organizational entity (Tannenbaum, 1966; Corwin, 1975). In addition, this variable can be measured for the district without removing individual variation. Consequently bias will be reduced (this will be discussed more fully in the next section).

The variables used in this study did not offer a very full explanation of retention rates. However, if retention is a better measure of organizational effectiveness, the lower effects may be more accurate and correct than the higher effects reported by Bidwell and Kasarda.

Finally, it is necessary to consider the place of this thesis in the Bidwell-Kasarda controversy. The most important contribution seems to be the use of school district retention rates as the new dependent variable. Bidwell and Kasarda's use of student achievement was constantly criticized because it removed variation that should have been included. Hannan, et. al., (1976) indicate that when Bidwell and Kasarda took a district measure for student achievement they removed a great deal of the total variation. They argued that achievement is an individual attribute. Achievement scores will vary from individual to individual in a school district. However, when Bidwell and Kasarda took a district measure for student achievement, they, in effect, assigned a constant measure to each student in a district. For example, students in one district might have ranged from 60 to 140 on some achievement scales, but if the median was 100, they all were assigned a constant 100 score. In another district the range may have been the same (60-140), but if the median was 101, all the students in that district would be assigned a constant score of 101. Thus, the variation for individuals ranged from a score of 60 to 140, but if district means are used the scores only vary from 100 to 101. It is obvious that a great deal of the total variation is removed. Hannan, et. al., (1976) suggest that if this variation is removed, the standard regression coefficients will be biased on the high side. As the total variance is reduced, the standard deviation of the dependent variable is reduced (because the standard

deviation is the square root of the variance). This results in larger standard regression coefficients since these are calculated by using a ratio of standard deviations. The lower (than it should be) standard deviation of the dependent variable in the denominator of the ratio will cause a higher effect to be calculated. Larger effects are more likely to (incorrectly) indicate significant paths in the model. Alexander and Griffin (1976a and 1976b) also were concerned with the very large effects reported by Bidwell and Kasarda. They felt that the results weren't as reliable as Bidwell and Kasarda thought they were.

The next step is to consider the use of student retention as the dependent variable in this thesis. It is true that dropping out of school can be affected by individual characteristics, but the measure of retention will not be affected by this. Even though this measure was made for a district, all of the total variation should be included in the variable. For example, suppose that school district A had a retention rate of 80%. That means that 4 out of 5 students in a cohort graduated from high school; one did not. Any of the students included in that cohort can be placed in his position on this measure. This is because the only variance can be from "yes", the student graduated (the 80%), to "no", the student did not graduate (the 20%). Variation from student to student is not removed, yet a logical measure for the district has been established. It is not possible in this measure to tell where the variance is situated. For instance, individual schools will vary in retention rates, but this variation cannot be

ascertained from these rates as the variation in individual students can be. If some of the variance has not been removed, then these effects should not be biased due to the calculation of standard deviations. Some may argue that this is a "bureaucratic" type measure, but what better way is there to test the effectiveness of a complex organization (i.e., as a "bureaucracy").

The final step then is comparing the model used in this thesis with the Bidwell-Kasarda model of school district organizational effectiveness. Bidwell and Kasarda explained approximately 25% of the variance in their dependent variable. In this thesis, about 21% of the variance in retention rates was accounted for. Most of the paths hypothesized by Bidwell and Kasarda were found to be significant. Many of the path coefficients were quite high. At this point it is necessary to recall the criticism of Hannan, et. al., concerning the method in which these effects were calculated. In this thesis only eight significant paths were found out of 31 hypothesized relationships. The effects in most cases were not unduely high. However, this study had, to some extent, solved the problem of Bidwell and Kasarda's biased effects.

Finally, neither study accounted for much variation (21% and 25%). Also, it seems that Bidwell and Kasarda did have biased effects that have been corrected in this thesis. Then possibly the main contribution of this thesis to the entire school district organizational effectiveness controversy is the implication that the basic Bidwell-Kasarda model is not a salient means by which

to measure the effectiveness of school district organizations. Perhaps the data results presented in this thesis more accurately portray the relevance of these organizational variables in a model of school district organizational effectiveness.

Limitations

Certain problems are inherent in this type of analysis. Others appear at a stage when it is too late to handle them. Consequently, these factors may serve to somewhat bias the reliability of this study. Any consideration of this thesis is not complete unless one also considers the conclusions that were drawn in view of the somewhat reduced confidence caused by these problems.

The first problem to be considered is the use of secondary data. Weiss (1972: 58) describes the "inexactness" of the data. It's not exactly what the researcher wants, so he has to make do. This was especially true with the operationalization of the EDUC variable. In this thesis the variable was operationalized exactly as Bidwell and Kasarda did, but actually it was rather illogical. Bidwell and Kasarda define EDUC as the education level of the "parental risk" population (1975: 59)--not necessarily those that are parents, but rather those that could be. This group is then defined as males, 20-49 years old, and females, 15-44 years old. Bidwell and Kasarda talk about this group in terms of their having children in high school. Obviously, very few people under age 30 are going to have children in high school.

This population that the education measure was calculated for cannot be considered the parents of high school students. This problem was even worse in this thesis, because high school graduates were being used. The worst part is that there is no way to be sure how to interpret the EDUC variable. On one hand, the assumption can be made that people are constantly getting more education. If this is the case, this younger population should have more education than the actual parents of high school students. On the other hand, by including females as young as 15 years old, some people are being included who haven't even finished school themselves. Their education level is likely to be lower than that of the actual parents. Consequently, there were some very strange results in this thesis involving the EDUC variable, such as the path from EDUC to PTRATIO ($p_{GD} = .334$, $p < .05$) and from EDUC to RET ($p_{KD} = -.240$).

Another problem with the governmental data was with the Census figures. Those variables obtained from the census reports (DISAD, EDUC, RURAL and PNONW) were calculated for the entire parishes. Yet, the data from the annual Department of Education reports were calculated just for the public schools. There probably is some problem as parents of children in non-public schools are included in some of the analysis. This might be especially evident when highly-educated parents who are included in the census data, live in an area where their children can be sent to non-public schools.

There was one problem with the retention rate that was not addressed at all in this thesis. That problem is migration. Obviously, in the three years between the ninth grade and the twelfth grade, some students are bound to have moved in and out of the various districts. Nothing was done at all in this thesis to take care of that problem. Instead, the assumption (and hope and prayer) was made that since only three years were involved, the net migration would be relatively stable in the various school districts.

The size of the sample in this thesis caused a small problem. Because the sample size was so small ($N=66$), it was quite difficult to find significant effects. However, this "sample" covered the entire population of the 66 public school districts in Louisiana. If this research was to be done in Louisiana using the same level of analysis as Bidwell and Kasarda, there was no way that the sample size could be increased.

The final problem to be discussed is that of multicollinearity. Some of the variables in this model were very highly correlated with each other. The results of this high inter-correlation are unpredictable. Whether this high correlation was due to variables measuring the same thing or variables that just occurred together was not determined.

In conclusion, some shortcomings are definitely present in this thesis. However, these should not serve to repudiate the

findings to any great extent. Instead, they should alert the reader to the analytical problems that were present in this study. Discretion should be used in applying these results to any population other than the one that they are based upon.

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